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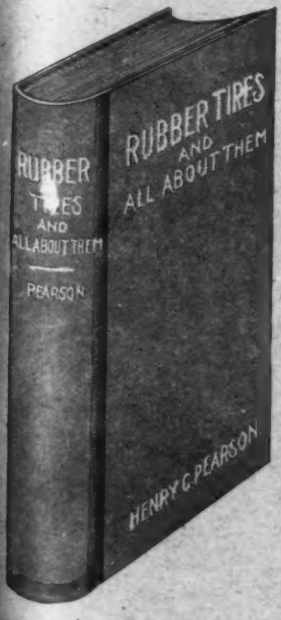

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TABLE OF CONTENTS.

THE Table of Contents of THE INDIA RUBBER WORLD, which for so many years has occupied a place in this column, will be found this month and hereafter on the last page of reading matter.

GUAYULE RUBBER.

THE development of the production of rubber from the so-called "guayule" plant in Mexico has progressed at a more rapid rate than has ever before been recorded in the case of any new grade of rubber, or of any new rubber producing field. The guayule rubber has suddenly become of such widespread interest in the trade that the Editor of THE INDIA RUBBER WORLD has thought it worth while to visit the region producing it, in order to become as thoroughly acquainted as possible with the situation. It is believed that the interest that has been expressed in regard to guayule will justify the amount of space which we have devoted to it.

The new rubber, while different from any other that has been known to the trade, is rapidly being adapted to its needs—something which occurs more readily nowadays than formerly. This fact alone indicates that we live in a progressive age, when an article is not necessarily regarded with suspicion because it is new. Otherwise, it might have been many years before capital would have felt justified in erecting all the guayule factories illustrated in our pages.

But it must be added that guayule rubber could not have been produced so rapidly but for the conditions under which the work is highly concentrated. Some such consideration applies to rubber production elsewhere, and illustrates why rubber from the *Hevea* species, for example, is handled so much more satisfactorily on plantations than in the forest. As is shown elsewhere, the supply of guayule is not so great that the producers of other rubbers need fear a vital change in prices from this product. Indeed, the trade is in a position to welsome every new rubber that can be brought to light.

THE QUALITY OF PLANTATION "HEVEA."

RUBBER planters in the Far East and the exceedingly capable scientists who are deeply interested in the production of crude rubber from cultivated sources are deserving of much praise in that they have really proved that rubber can be, and is, cultivated on a large scale. That it is financially a success is also proved by the premiums at which shares in rubber planting companies are sold. Considering the youth of the plantation problem in the sections under consideration, the volume of rubber is exceedingly satisfactory. To the rubber manufacturer, however, the quality of the product as compared with Pará rubber from the Amazon is very unsatisfactory. Although they use this rubber in increasing quantities, the complaint arises that the product is very uneven, that the fiber is in many cases exceedingly short, and that almost every shipment contains some weak rubber, that is, exceedingly weak.

The planters were, and doubtless still are, anxious to put a product upon the market that will be the best in the world and that will be so staple that a parcel bearing the name of a given plantation will find a ready sale because the purchaser will know, without sample being submitted, about what to reckon on for shrinkage and what for tensile strength. The shrinkage question has been very successfully dealt with, but tensile strength and lasting qualities are not yet what they should be. In other words, no wise manufacturer to-day, leaving out the question of interest on investment, would dare to buy 50 tons of cultivated *Hevea* rubber and store it for six months, because he would be afraid of the very appreciable deterioration in quality. On the other hand, he would buy thousands of tons of upriver fine Pará and store it with a full knowledge that it would not grow worse in storage, but would grow better.

Now, it is perfectly possible that one reason for the difference between smoked wild rubber and the scientifically gathered cultivated rubber lies in the age of the trees. It is, however, equally possible that the whole matter comes down to the question of coagulation. The native gatherers up the Amazon expose a thin film of latex to heat and smoke. The result is that the latex is not only coagulated but the film is dried and perhaps very slightly *vulcanized*, so that if this is thoroughly done the rubber remains hard and immune to any ordinary storage changes for years.

It would seem, therefore, that with this knowledge as a basis, the planters in the Far East have an opportunity

to do away with their present method of coagulating and adopt one, even if it is a smoking process, that will produce a stronger, and above all, a more stable product. It would not by any means of necessity be a process of hand dipping such as is used up the Amazon, as a very simple mechanical process, continuous and economical, could easily be devised, first, to produce films of latex, and secondly, to cure them. Another thing: 95 per cent. of the rubber manufacturers would infinitely rather have cultivated rubber of a dark mahogany color, if in quality it was equal to upriver fine, than to have it a beautifully transparent product, but weak.

WHY SCRAP RUBBER IS DEAR.

THE recent marked advances in the cost of waste rubber not unnaturally have revived suggestions for the regulation of prices. But there is little in the history of the trade to support the idea that regulation is practicable, however desirable fixed prices at lower than the present market might be. It is not reasonable to credit present prices to speculation; the trade in waste rubber has become far too diversified for any sort of artificial price level to be long maintained. The truth is that with the growth of the rubber industry as a whole has been developed an increased demand for reclaimed rubber at a rate which has exceeded the increase in supply of scrap stock. In other words, changed conditions have brought about change in prices, and the situation demands a fuller study than a mere comparison of quotations.

At one period the price of old shoes to reclaimers was steady for a good while at about 3 cents a pound, but the market was dominated then by a combination of consumers, making practically but one buyer in the trade. That condition no longer exists and is not likely ever to be repeated. Since then a number of reclaimers have entered the field, introducing improved processes and improved products, with the result that reclaimed rubber has found many new uses and a vastly increased total consumption. The present use of reclaimed stock in the United States has been estimated to be as large in weight as of new rubber, and there is no important rubber factory abroad in which reclaimed is not used.

Old shoes were first used for reclaiming rubber, and continue to form the most important material for this purpose. Similarly the rubber shoe industry was first to use reclaimed rubber to an important extent. But today reclaimed stock goes into mechanical goods in great volume, into insulation compounds, and so on. The collection of old shoes becomes better organized every year, so that scarcely any are now overlooked in this country or any other, but the same has not become true of many other classes of waste rubber. The reclaimers still depend largely upon old shoes, while reclaimed rubber goes more and more into classes of goods which yield as yet comparatively little in the way of waste stock.

The next development in the trade will lie in the direction of the wider treatment of scrap other than shoes, thus enlarging the stocks open to reclaimers. This may have the effect of lowering the price level of scrap, but never again to the figure which prevailed ten years ago, when the reclaiming industry was still so small as compared with now.

SYNTHETIC RUBBER DELAYS.

THERE is no doubt that many, or perhaps more accurately, that some believe that the discovery of synthetic rubber is near at hand. Nay! Further than this their faith is that synthetic rubber has already been produced in laboratory experiments, and that its production on a large scale is merely dependent upon the solving of certain mechanical difficulties in manufacture. The men who believe this are not rubber men, to be sure, but are in certain instances, at least, thoroughly capable and successful business men in other industrial lines. Their faith is so potent that they put up hard earned dollars not only to build experimental machinery, but as a rule to keep the breath of life in the body of the discoverer of the great secret.

Now, it may be that one of these discoverers has really discovered—that he has really made rubber synthetically at the rate of a pound, two pounds, or five pounds a month, but isn't it a little bit odd that when the same discoverer is put up against a problem of producing rubber even in ton lots that something always goes wrong? The power plant is lacking in something, the grinders, if they use them, won't grind, the tanks, made of special metal from Germany, fail to arrive—in other words, months and years of delay ensue, and the only thing that is really permanent is the hope of the backer and the salary of the discoverer.

"SCARCITY OF RUBBER."

IN some recent comments on the rubber prospect in Ceylon, Dr. John C. Willis, of Peradeniya, whose work has done so much to encourage the systematic culture of rubber, cautions planters against too great optimism in the matter of continued high prices. No doubt such caution is timely, on the general principle that investors in any line of production are wise not to count for all time on top notch returns. We ourselves see no present indication of materially lower prices for rubber in general, but some reaction from the unprecedentedly high level of a year or so ago is only natural, and planters should be prepared for a decline if only as a matter of common business prudence.

What strikes us particularly in Dr. Willis' article is his suggestion that the high prices experienced of late have been due probably to a "scarcity of rubber." It follows that if rubber is about to become more plentiful and continue so, there will be an end to large returns for planters. We have pointed out already the general relation of supply and demand for rubber to prices, but how shall "scarcity," as Dr. Willis uses the word, be de-

fined? During each year of late the world has produced more rubber. The total for any one year cannot be stated with exactness, but it is believed that the deliveries to manufacturers in the United States alone have doubled within ten years, and the rate of increase probably has been as great abroad. In other words, while prices have been at the highest point, more rubber has been coming forward than ever before.

There has been no "scarcity" except in the sense that rubber has been in increasing demand to such a degree that consumers have bid for it eagerly at higher than former prices. The question is not alone whether there will be more rubber available, in view of all the planting that has been done, but whether the demand will continue to grow. We take it that Dr. Willis has seen no indication of decreased demand, so that his comments need not, after all, cause any great alarm.

THE RUBBER FOOTWEAR TRADE was referred to in our last issue as if it had experienced a shortage of snow. But before the paper could reach its readers an exceptionally heavy snowfall visited New York and many other parts of the country, which shows that it is not yet safe to prophesy about the weather. But now that the snow has come, it may be recorded that it appeared to drive everybody into "rubbers." It used to be a maxim in the rubber shoe trade that to be of real service a snowfall should happen before New Year. But of late it seems that people will buy rubber footwear when it is needed, regardless of the month. It is safe to say at least that the trade has not been ruined this winter.

THE COTTON SITUATION CONTINUES SO ACUTE as to be of more concern to the rubber manufacturers than the cost of raw rubber. Thus far no suggestion has come forward as to how the situation might be relieved. There is not even in the minds of the trade certainty as to the cause of the cotton stringency. From one source comes the assertion that there is cotton in plenty, but a shortage in spindles and looms. This explanation is good as any until a better one is advanced.

INDICATIONS CONTINUE TO APPEAR of the great extent of the friendly interest with which the late visit of Mr. Root, the secretary of state at Washington, was regarded in each of the South American countries embraced in his tour. We believe that conditions of mutual friendly regard between countries—which are possible only through mutual understanding—are most helpful to closer and more profitable commercial relations. The other extreme is war, which cuts off trade completely. Mr. Root and his government cannot feel otherwise than gratified at the welcome which was everywhere accorded to him, and if his public utterances be accepted in good faith the effect must be the weakening of doubts which have been expressed in Latin America as to the specific intentions of the United States. It may be that increased commerce between North and South will not be an immediate result of Mr. Root's journey, but it undoubtedly has paved the way for the more favorable reception of overtures from this end of the line for a larger trade. After all, it is the merchant who must make trade, and not government officials.

DERESINATED GUAYULE RUBBER.—The various extractors of guayule rubber have done some really remarkable work in extracting the resin, and producing rubber that comes about as near to being resin-free as any on the market. For example, one company has produced guayule containing only 1.06 percentage of resin, which is less really than upriver fine Pará, which contains normally 1.3. This guayule rubber is said also to be very transparent, and free from stickiness. At first blush it might be thought, because of the freedom from resin, that the rubber would be equal in quality with fine Pará. That, however, does not by any means follow, as the absence of resin does not necessarily presuppose the toughened fiber, the lasting quality, or even the compounding possibilities that Pará rubber possesses. It is, therefore, quite possible that an additional toughening process is needed to bring deresinated guayule up to the standard aimed at. That this can be done is not unlikely, but it must be along the lines, in coagulation, that give to Pará rubber its extraordinary toughened fiber.

WHO CAN SAY THAT THE GOVERNMENT OFFICIALS do not try to earn their salaries, in view of the vigorous efforts which have been made of late to impose an import duty upon balata coming into the United States? The sole basis for their activity is the fact that "balata" is not enumerated in the Tariff act. But neither is pontianak gum, of which vastly more is imported; nor is guayule rubber—but we don't care to cut out too much work for the collectors of customs.

THERE ARE INDICATIONS ON EVERY HAND of the prosperity of the india-rubber industry, not the least convincing of which is the fact that it is nowhere disputed. But we wonder if it has occurred to any one before that a very decided indication is the lack of activity of the rubber manufacturers' associations? Somehow or another these organizations never seem to get busy except when the trade is thought by at least some of its members to be in a bad way.

IT IS NO WONDER THE RUBBER TIRE INDUSTRY is so active on this side of the Atlantic, when it is considered that there are more automobiles registered in New York alone than in any European country, and there are forty-four other states in which the number of automobiles is increasing constantly.

MORE RUBBER CENSUS FIGURES.

IN the last two issues of THE INDIA RUBBER WORLD have appeared details of the india-rubber industry in the United States, derived from the 1905 census of manufactures, the figures relating to the calendar year 1905. From additional census bulletins now on hand it is possible to supply like details for three additional states, practically completing the list of states in which the rubber industry is carried on:

	NEW YORK.	OHIO.	PENNSYLVANIA.
Number of factories	55	27	13
Capital	$4,752,250	$11,654,287	$2,579,606
Salaries paid	462,953	622,715	102,568
Average number of wage earners	2,692	4,815	751
Wages paid	1,113,381	2,318,259	365,661
Miscellaneous expenses	681,700	1,740,245	306,772
Cost of materials	4,999,714	10,225,800	1,313,245
Value of products	8,265,690	15,963,603	2,220,355

New York state will be seen to be a rubber manufacturing state of considerable importance, though the figures given here do not cover the whole rubber industry in the state. For example, the bulletin for New York says: "The value of products for the rubber belting and hose industry increased greatly, but statistics cannot be shown, as only one establishment reported." The total value of products of "Rubber and elastic goods" reported for the state is $8,265,690, of which $5,520,865 is credited to New York city.

The growth of the industry has been particularly rapid in Ohio, where the value of products increased from $7,330,104 in 1900 to $15,963,603 in 1905. Of the latter figure, the share of Akron is $13,396,974.

THE ACTIVE HEAD OF THE "NATIONAL."

THE National India Rubber Co., Bristol, Rhode Island, on account of the size of the plant, the varied lines manufactured, and the arrangement of the power plant and factory buildings, has always been a difficult proposition to handle successfully and economically. That this is now being done and that it is under the management of Le Baron C. Colt, a nephew of the president of the United States Rubber Co., and son of Judge Colt, is of more than passing interest. Mr. Colt's training for his present position covers a number of years and was of the most severe nature.

LE BARON C. COLT.

Back in 1899, after his graduation from Brown University, he entered the employ of the National India Rubber Co. as a workman by the day, his first experience being in the cloth room, where he got a thorough knowledge of all the varied fabrics used in rubber manufacture. From there he went into the mill room, first as helper, then as mixer, where he learned to handle the grinder with the most expert, and in time was advanced to the calender and in that position finally became an expert calender man. Thence he went into the cutting room and learned both hand and machine cutting thoroughly. Next he took in the making-up department, and learned with his own hands to make shoes, boots and arctics, and then went into the heater room and spent several months not only running dry heats, but studying the whole subject.

It was about this time that the management appointed Mr. Colt assistant superintendent, which gave him considerable time to devote to the laboratory and to experimental work, for which line he developed unusual fitness. Next, to learn the market for the goods, he went on the road for some time as traveling salesman for the company. In January, 1905, he was appointed agent and general superintendent and at once took hold of the problem of getting order out of the heterogeneous aggregation of buildings and machinery that represented the largest rubber factory, territorially, in the United States. Beginning at the power plant, he consolidated the machinery, built a new calender room, did away with much antiquated machinery, and arranged the whole so that the handling of all goods, either in process of manufacture or finished, was reduced to a very low cost.

Then one by one he reorganized the various departments. He began with the shoe department, for example, and increased its capacity from 18,000 to 30,000 pairs a day. The insulated wire department, which was off at a distance, was brought into one of the main factory buildings and the output increased from 60,000 feet to 200,000 feet a day. The same intelligent work was put upon the druggists' sundries department, the mechanical rubber goods department, and the clothing and rubber cloth departments. In other words, every department, while it is run as a separate factory, is close to the central power plant and is not only economically operated but the output has been so increased without adding to the overhead charges that the business is handled more easily and is infinitely more profitable.

Mr. Colt was born in Bristol in 1877, in which city he has his home, his wife being the daughter of Rear Admiral Converse, of the United States Navy.

THE RUBBER STAMP TRADE.

FROM all accounts the rubber stamp trade in the United States appears to have been in an exceptionally satisfactory condition during the past year, and it continues so at the present time. There is reported an increasing demand for all kinds of goods embraced under this heading, with the result that stamp makers have been able to obtain better prices than at some periods in the past. In keeping with other rubber products, stamp rubber has been advancing in price, until the figure is probably higher now than at any previous date. One rubber stamp manufacturer informs THE INDIA RUBBER WORLD that on the goods he purchases three distinct advances have been made during the past twelve months.

The increased demand for rubber stamps has kept pace with the general prosperity, in addition to which various causes have contributed to an increased sale of stamps. For instance, the Pure Food law, which went into effect on January 1, provided that all goods in stock in the hands of large or small dealers on December 31, 1906, could be marketed under the original labels if a statement were annexed that the goods were actually in stock on the date named. Dealers generally have found it convenient to use a rubber stamp in affixing this statement, and as there are tens of thousands of dealers in the United States, the demand for stamps from this cause alone has been very marked. The same regulation relates to drugs, proprietary medicines, liquors, etc., as to food. The new law requiring an accurate statement of the contents of food packages becomes fully effective on October 1 next, and until this time the rubber stamps referred to will be in requisition.

The same improvement that has been seen in the rubber stamp trade applies likewise to the trade in rubber type, which of late years has reached very important proportions. Rubber type is used in window signs, in marking goods with prices or descriptive labels, and in various other ways where economy is experienced in its use instead of having cards or labels supplied by regular printers.

The export trade in rubber type has reached considerable importance, but the demand abroad for American made rubber stamps has grown less rapidly. In this respect the competition of German makers has been felt in many quarters. British competition has been less marked, and an American manufacturer asserts that stamps could be exported readily to England.

No estimate exists as to the volume of the rubber stamp trade in the United States, particularly as it is carried on, as a rule, with allied trades. There are a number of houses, however, that are credited with using 500 to 1000 or more pounds each per month of stamp rubber, which would indicate a very considerable total consumption in a year.

There are several firms who make a specialty of the sale of rubber stamp outfits, including vulcanizers and the like, and these report a very satisfactory foreign demand. There is to-day practically no country or colony in which rubber stamps are not used, and in most of them these stamps are made, and the United States have had a good share in supplying the outfits.

In addition to the sale of stamps direct to users, many of the larger concerns sell stamps at wholesale to operators in the trade who solicit orders but do not make their own stamps. Formerly there have been times when these middlemen, in the keen competition for business, have led to the cutting of prices to an unreasonably low level, but of late the active condition of the trade has caused this condition to disappear, and satisfactory prices are the rule throughout the country.

A Journey Through Guayule Land—I.

By the Editor of "The India Rubber World."

FOREWORD.

THERE is so much of present interest to the rubber trade in Guayule rubber and its production that I am going to break away from all literary precedents and give the solid summary of my trip first and the tale of travel later, beginning with—

DISCOVERY AND DEVELOPMENT.

THAT the so-called "guayule" shrub contains rubber doubtless has been known to the Mexican Indians for centuries. By chewing the bark they were and are accustomed to extract enough rubber in the course of a couple of days to make a small playing ball. Sometimes for this chewing process was substituted the grinding of the bark on a stone matate, and the separation of the fiber by washing it away in running water. The state of Durango seems to have been where this was most frequently done,

CART LOADS OF GUAYULE SHRUBS.

although the process was known all through the uplands wherever the shrub was found. The Aztecs and their descendants probably knew of no other use for the rubber than that mentioned. It was doubtless this process that was noted by the Jesuit fathers, early in the eighteenth century, and mentioned by Dr. Rudolph Endlich in his scholarly eassy in *Der Tropenflanzer* in 1895.

In 1876, among the Mexican exhibits at the Philadelphia Centennial Exhibition, was shown some rubber from Durango that was undoubtedly guayule, although its source was not definitely known botanically.

I think it was in 1889 or 1890 that the late Mr. John H. Cheever, of the New York Belting and Packing Co., told me of a shipment

GUAYULE BY THE TRAIN LOAD.

of a lot of "rubber vine" from Mexico from which he was able to extract a fair percentage of good rubber. He said, however, that so many low grade rubbers were appearing on the market, at so low a price per pound, that it would not pay to work. He did not preserve either samples of the rubber or the bark and knew nothing of its botanical source.

In 1896 Mr. E. Guillermo Vogel wrote me from the city of Mexico to the effect that he had sent small samples of a new shrub rubber to Mr. H. O. Canfield, who had found that they compounded and vulcanized very well. As he wished to introduce the rubber on a large scale, and first of all learn its market value, he had been referred by Mr. Canfield to me. He therefore enclosed samples of rubber and of the bark from which it was extracted. He spoke of the product not as rubber, but as a substitute for rubber, and said it was extracted by "pounding or hammering the bark and then boiling it." The sample that he enclosed he said was a year old and had not appreciably softened.

I handed the sample to the late Mr. Robert Cowen, superintendent of the Boston Woven Hose and Rubber Co., and the laboratory report was as follows: "This rubber seems to heat very rapidly and would of course for this reason deteriorate in store. Its value as closely as we can judge from the sample in the condition received is 22 cents a pound." Up-river fine Pará was then quoted at 84 cents.

Reclaimed rubber, various substitutes, and low grade Africans were at that time coming into the market so rapidly that none of the American manufacturers were interested in the Mexican product, and it dropped out of sight.

In 1897 German traders in Mexico many times called attention

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to the rubber shrub in the uplands, but even then the trade was not ready to take it up.

In 1899 William Prampolini, an Italian contractor, took out patents for the extraction of rubber from guayule by means of solvents. His apparatus was constructed by a large foundry company in Monterey, and caused considerable newspaper talk, but little else. In 1900 Senor Matias Hernandez Sobreron wrote THE INDIA RUBBER WORLD that he would soon start up a factory at San Luis Potosi for the extraction of rubber from the shrub growing in that vicinity, the company to be capitalized at $100,000.

In 1901 came the first of the Bergner patents. In 1902 there were issued a variety of patents, some of which are said to be of value, but most of them worthless. In 1903 came a Fritz patent, and closely following the first of the Lawrence patents. In this year was established a small factory in San Luis Potosi by Dr. Adolpho Marx for the extraction of rubber from the shrub.

In 1904 came a Delafond patent, together with nineteen others issued to different investigators. It was in this year that the first serious work was done, it getting down to a real extraction of the rubber on a commercial scale. The leaders in this investigation were Dr. Adolpho Marx, Juan Fritz, E. Delafond, C. E., W. A. Lawrence, and many others. All of those named were backed by capital—German, French, Mexican, or American.

In 1905 there were issued fifty-two patents for extraction, and to very many of them are appended the names of to-day's leaders in the guayule business. In addition to those named above, who also appear as inventors in this year, are Salvador Madero, F. H. Hunicke, Mauro de la Pena, Francisco F. del Hoyo, Oton Katterfeldt, and others.

It was in this year also that a factory in Germany, backed by large financial interests, for the extraction of rubber from guayule experienced its most profitable run. The shrub was bought, baled, and shipped by Mr. Oton Katterfeldt, who traversed most of the territory where guayule was known to grow, and who secured many thousand tons at prices that look ridiculously low at the present time. This German enterprise was kept very quiet and must have made much money until in September the Mexican government put an export duty of 15 pesos a ton on the shrub,

REAR OF FACTORY NO. 1—CIA. EXPLOTADORA DE CAUCHO MEXICANA, AT SALTILLO.

which, with the freight rates, made further shipments unprofitable.

Then came the incorporation of L'Anglo-Mexicana, the erection of a factory for the Maderos, and a half score of others, and the fruition of the Lawrence experiments in the formation of the Continental Rubber Co.

During the year past, 1906, more progress was made than in all the years previously. There were forty-three patents issued, most of them to names already given as patentees, but it is interesting to note the addition of such names as Edward B. Aldrich, Arthur H. Marks, and Frederick C. Hood.

For the first time, in this year, the rubber manufacturers of the world awoke to the fact that guayule rubber was of great value to them, and began to use it in large quantities. This, of course, greatly stimulated its production and the Mexican companies began to cast an eye to the windward to see how much shrub was in sight. No one claimed an inexhaustible supply, but estimates varied, and the result was that by contract or purchase of the great ranches upon which it grows most of the shrub that is anywhere near profitable transportation was tied up. This has meant the purchase of many great estates, and often the erection of extraction plants in little known sections of the republic.

GUAYULE BOTANICALLY CONSIDERED.

BACK in 1876 Mr. Fernando Altimarano described the guayule shrub as of the genus *Cynanchum*, of the natural order *Asclepiadeæ*. Later it was often referred to as the *Synantherewas Mexicanas*. It was, however, finally identified as the *Parthenium argentatum* (A. Gray.)

It is the only rubber producer known so far belonging to the *compositæ*. It has no latex, the rubber being chiefly in the cells of the bark, a little in the wood, and none at all in the new shoots or leaves. The bark also contains balsam like resins, which are extracted with the rubber and are the cause of its softness and stickiness as compared with fine Pará, for example. A shrub so similar to the genuine guayule that it is often mistaken for it is called by the natives "mariola," and by the botanists *Parthenium incanum*. This is three times as plentiful as guayule, and while it possibly contains 1 per cent. of rubber, will not at the present state of the art pay for extraction. Guayule gatherers recognize the plant that they seek by its invariable habit of coming up as a single stalk and then branching, while the mariola branches at the roots under the ground.

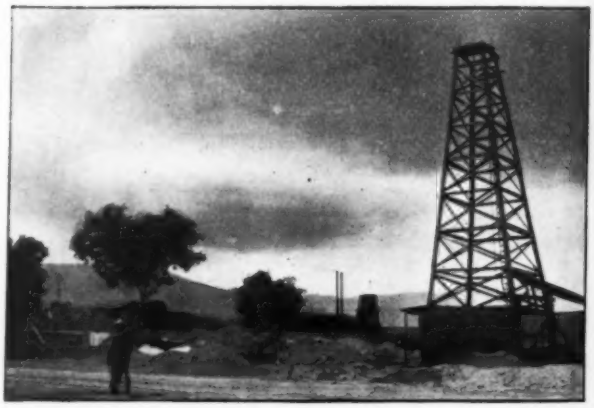
The guayule blossoms normally in September or October, but has a curious habit, so it is said, of putting off efflorescence until a shower comes, and then blooming and seeding. The rains are very infrequent and the rainfall measures only 3 or 4 inches annually in the sections where the plant grows, so that the seed crop often fails.

The shrub grows in extreme cases to the height of 3 feet, with many branches, these plants weighing as much as 3 or 4 pounds. The average height, however, is about a foot, and a pound weight per plant is generous. In cutting or pulling, the gatherers are not allowed to take any shrub that has a stalk less than ¾ inch in diameter at the base.

The shrub grows at an altitude of from 3,000 to 6,000 feet, and seems to flourish on sloping ground among the foothills of the mountains, and almost invariably where lime is present in the arid soil. It is a slow grower, the shrub now being treated showing an age of from 10 to 20 years, as nearly as can be estimated.

The name guayule (pronounced y-u-le) is, according to Dr. Endlich, derived from a Spanish word, *hay* (there is), and the Indian word for rubber, *hule*.

The best Mexican shrub contains from 8 to 10 per cent. of rubber, while that from Texas is said to contain from 5 to 8 per cent.



BEGINNING FACTORY NO. 2—CIA. EXPLOTADORA DE CAUCHO MEXICANA, AT SALTILLO.

Described in brief, guayule is really a dwarf tree, and where it is abundant averages about 1½ feet in height. The wood is very hard, of a yellow-green color, and the bark gray on the outside and quite thick. The shrub has a thick, stubby trunk, which throws out many branches, the leaves being lanceolate, toothed at the edges, and of a silver gray color. The light yellow buds are at the end of the long stems, and as the plant belongs to the *compositæ* the talk about male and female plants which some prospectors indulge in is not worth considering.

WHERE GUAYULE GROWS.

THE home of guayule, that is, where it is known to grow in greatest abundance, is in the states of Zacatecas, Nuevo Leon, Coahuila, Durango, and Chihuahua. It is also known to exist in Sonora and in the parts of Texas adjacent to that state. The report that it was found on the slopes of the Andes south of the equator is denied by a gentleman whom I met in

Mexico, and who traveled thousands of miles through these mountainous districts specifically to discover if the plant grew there.

AVAILABLE SUPPLY.

FOR several reasons it is most difficult to determine exactly how much of the shrub there is available for manufacture. In the first place, it has been so confused with mariola that honest investigators who believed that they had located a territory on which grew say 10,000 tons, found later that there was actually anywhere from 500 to 600 tons only.

Then, again, the heads of the extraction companies, in giving figures as to amounts of shrub in sight, invariably set their own supply as very large, but cannot bring themselves to think that the other fellow has any considerable amount.

Again, there are areas not yet definitely known. The state of Sonora, for example, contains the shrub, but until the Yaqui Indians are conquered no one is likely to profit by it. Then, too, there is considerable in Texas. How much, few, if any, know and they don't tell. Report has it further that Lower California is rich in the shrub, but that is seriously doubted by the experts, because the climatic and topographical conditions do not appear to be favorable.

However, Otto Katterfeldt, who ought to know, claims that there are about 489,000 tons that can be profitably worked. Dr. Endlich thinks there are 375,000 tons. From my own figures, gathered with much care, I should put 300,000 tons as a conservative figure.

From 20,000 to 30,000 tons of the shrub have already been ground up—so it is estimated. Of the shrub that can be profitably gathered there is only about 20,000 tons still uncontracted for, and that is held at so high a figure that no extractors are at present interested.

REPRODUCTION AND CULTIVATION.

ONE of the early suggestions that related to guayule was that it might be cultivated on a large scale, both in the United States and Mexico, and indeed, in arid lands all over the world. For this reason the growth of the shrub in its native habitat has been very carefully studied. One thing that is noted almost at once is that it grows very unevenly—in some places in thick clusters, said to be where cattle and goats have lain, in other places in straggling clumps quite a distance from each other. The seed is exceedingly small and apparently germinates reluctantly and the young plant grows very slowly. This, no doubt, is due in part to the lack of water, and were the calcareous foothills situated where irrigation were possible it might be forced. It is very strongly asserted in Mexico, however, that the forcing of the plant, while producing a rapid growth, does not build bark that contains any particular percentage of rubber.

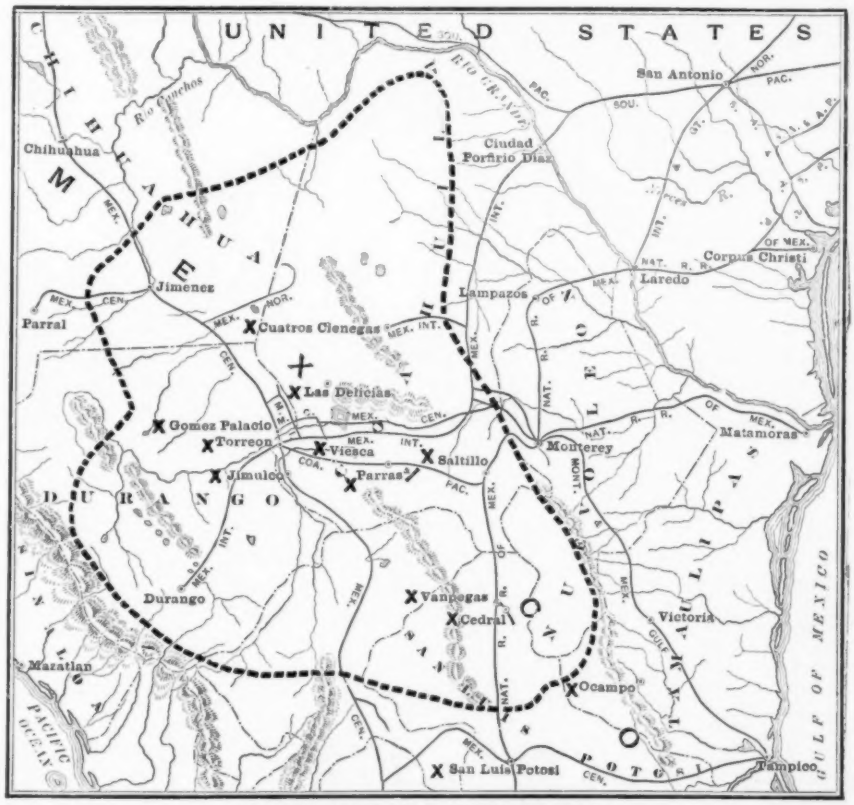
Quite close to the Madero factory at Parras is a patch of land in which guayule seeds were planted more than a year ago. They sprouted, but to-day the plants barely show above the surface of the ground. It is possible that this was not a fair test, as no guayule grows quite in that locality anyhow, and the soil is perhaps not adapted for it. Investigators have asked many questions of natives and the miners who have denuded fields of guayule and used the shrub in smelting, but so far the figures are of little value, some claiming that the plant renewed itself and again clothed the fields as thickly as before in 25 years, others saying 15 years, and some bring it down to 5 or 6. One of the keenest observers of guayule believes that in 5 years' time any guayule area will again be ready for gathering, and he adduces what seems to be good proof for his position.

Guayule transplanted to other climates has not so far been successful. For example, the experiment of the Berlin botanical gardens came to nothing, while the seed sent to German East Africa sprouted, but the plants had a very sickly look and did not appear thrifty. While I was in Mexico a scientist from one of the government agricultural experiment stations in Texas was in the uplands gathering guayule plants with the idea of trying an experiment of grafting them on the roots of the Texas guayule, and thus increasing the rubber product of the latter plant.

By the way, the story is that even the genuine guayule divides itself into two grades—the shrub that "cuts white," having but 6 per cent. of rubber in it, while the black has from 10 to 11 per cent.

EXTRACTING GUAYULE RUBBER.

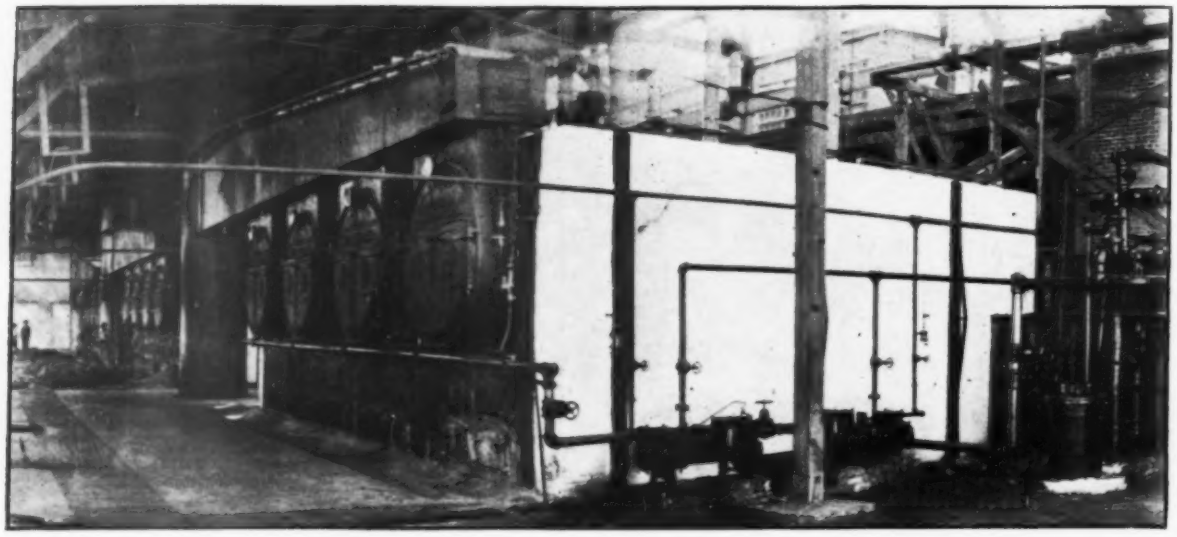
THERE have already been published lengthy descriptions of



MAP OF THE MEXICAN GUAYULE DISTRICT.

THE heavily dotted line bounds the area richest in guayule shrubs. The towns at which guayule factories are located are indicated by a heavy X. They are:

GOMEZ PALACIO, TORREON, JIMULCO, CEDRAL, VIESCA, PARRAS, SALTILLO, CUATROS CIENEGAS, SAN LUIS POTOSI, OCAMPO, VANPEGAS, LAS DELICIAS.



STEAM PLANT OF THE CONTINENTAL FACTORY, AT TORREON.

various guayule processes. It is safe to say, however, that none of them as a whole is in use to-day, and many of them never went beyond the experimental stage. Speaking generally, the extraction of the rubber resolves itself into two processes: One that is purely mechanical, and another that is partly mechanical and partly chemical. Both of these have been got down to quite a simple basis, and the early attempts for extraction by means of such solvents as bisulphide of carbon have been given up.

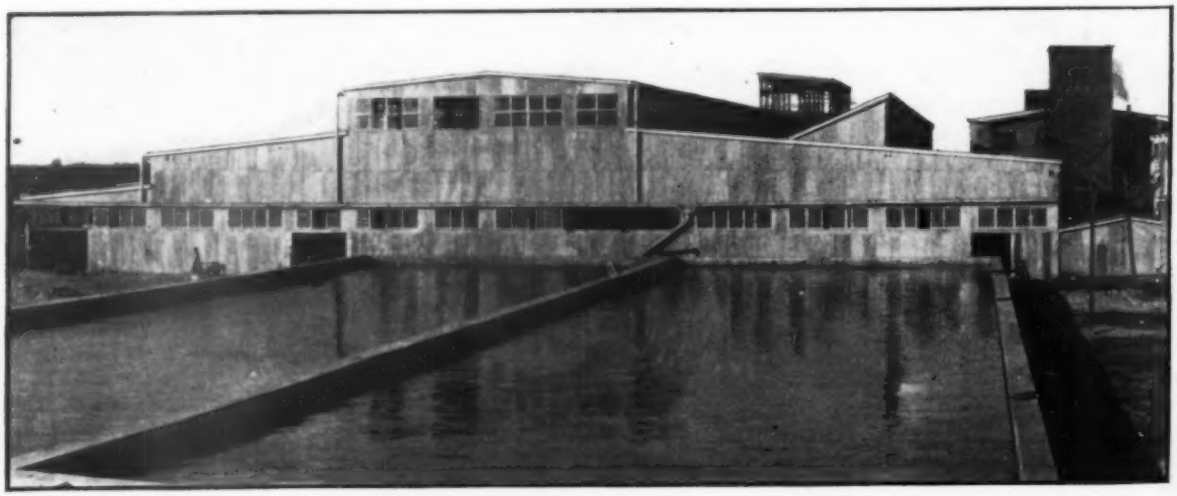
GUAYULE RUBBER EXPORTS FROM MEXICO.

	Pounds.
Prior to fiscal year 1905-06. (Estimated)	500,000.
Fiscal year 1905-06. Considering the increase in total exports (official) over preceding years	2,200,000.
July 1 to December 31, 1906. Based on New York arrivals, giving Europe 35 per cent. of total	2,700,000.
January, 1907. (Estimate)	700,000.
Total	6,100,000

The extraction plants for guayule are some twenty in number; that is, when you count all those in operation, those that have been running but are now shut down, and several factories that are now in process of construction. The bulk of the business is done by three large companies, controlled by interests that are briefly known as the Continental, the Madero, and the Anglo-Mexicana.

The Continental (Continental-Mexican Rubber Co.) at the present time seems to be consolidating everything at their great plant at Torreon. They own other factories, however—one at Saltillo, another at Ocampo, and the two factories that came with their purchase of the Pena interests, one at Gomez Palacio and the other at La Grunidora. They own the Delafond, Lawrence, Hunicke, Aldrich, Baconnier, Martin, Pena, and other patents. The present product of their factory at Torreon is 8 tons of rubber per day. Of the great properties that they own one is the hacienda Santa Catalina y Arrepas, commonly known as "Del Rio," and they have recently purchased also the Cedros hacienda containing some 2,000,000 acres and much shrub.

The Madero interests comprise their original manufacturing company, which is Compania Explotadora Coahuilense S. A., has its headquarters at Parras, on the Coahuila and Pacific division of the Mexican Central railway. The company is owned by the



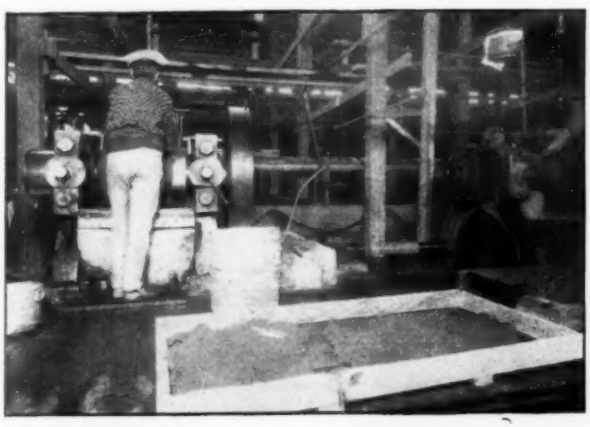
WATER TANKS AT THE CONTINENTAL FACTORY, TORREON.

Madero family, the officers being Salvador Madero, president; Ernesto Madero, vice president; Francisco Madero, secretary; Gustavo A. Madero, treasurer; Domingo Valdes Llano, general manager, and Elliott W. Knight, superintendent. They have one factory in operation at Parras, Coahuila, and two others in process of construction. One of these is at Las Delicias, Coahuila, which will be running in June, and another at Cuatros Cienegas, Coahuila, which will be in operation early in April. They claim for the three factories named tons of shrub as follows:

Parras	60,000 tons.
Las Delicias	20,000 tons.
Cuatros Cienegas	20,000 tons.

They further claim that this company and another Madero company have in sight and control 130,000 tons of shrub. Further than this they have a concession from the state of Zacatecas for erecting extracting plants on the state lands. The Maderos are very large land owners, their guayule land holdings amounting to 300,000 odd acres. They own also the hacienda del Calabazal in Zacatecas and are in partnership with the Hacienda de Las Delicias S. A. and the Compania Ganadera de la Merced S. A. at Cuatros Cienegas. Salvador Madero has also formed a partnership with Francisco del Hoyo, who owns the hacienda San Tiburcio, where it is claimed there are 76,500 tons of shrub. This is to be operated under the name of Salvador Madero y Cia. S. en C. Early in May this company will have a factory established at Vanegas, San Luis Potosi.

The third large interest is the Compania Explotadora de Caucho Mexicana, known formerly as L' Anglo-Mexicana. This company at the present time has factories in operation at Saltillo, where Mr. H. G. Gunther is manager, and at Jimulco, where Julian Fritz is manager. A third factory is being erected at Saltillo, near the present plant. Dr. Adolpho Marx, S. en C., with headquarters in Mexico City, is partner and general manager of the business. Foreign partners are said to be the Dresdner Bank, Berlin, the great Harburg-Wien Rubber Co., and other German capitalists. It is gossiped that this company also practically controls some of the small plants which claim that they operate independently. It also owns the Prampolini, Bergner, Fritz, Marx,



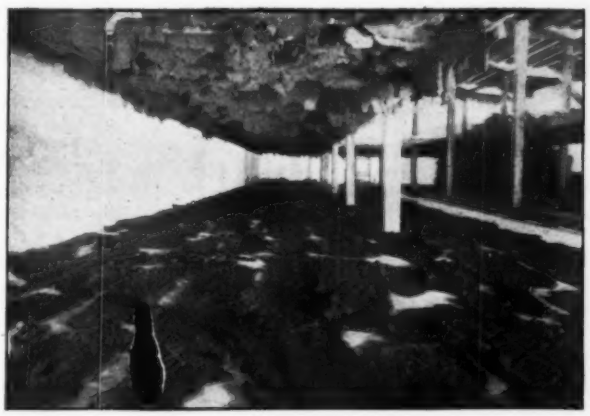
WASHERS IN A GUAYULE FACTORY.

and other patents. Just what their supply of shrub is they do not state, but Katterfeldt gives them 50,000 tons.

The Mexican Crude Rubber Co., formerly the Coahuila Mining and Smelting Co., has two factories at Viesca, Coahuila, and are erecting another at Cedral, San Luis Potosi. The company is a Michigan corporation, with a capital of $1,500,000. They claim to have contracts for 50,000 to 75,000 tons of shrub and to own a large hacienda on which are some 20,000 tons of shrub. The officers are Ralph M. Dyar, president, and W. E. Parker, general manager, both of Detroit, Michigan.

There are in Torreon, in addition to the Continental company, four small factories: (1) that of Charles J. McGregor, which is run as a private enterprise; (2) the International company (La Internacional Mexicana Compania, Guayulera, S. A.), of which A. L. Valdespino is the president; (3) the Torreon Rubber Manufacturing Co., in which Scheiss & Co., large hardware dealers, are interested, and (4) the Delafond Rubber Co., owned by San Francisco people, but not now in operation. At Gomez Palacio, not far from Torreon, is the factory of the National Rubber Co. This is owned by Texas capitalists, the officers being Otto Koehler, president; Otto Wahrmund, vice president, and William Magenau, general manager. There is also the factory of Oton Katterfeldt in the same town, and a factory soon to be established by Torres and Valdespino.

At San Luis Potosi there is the factory of the Guayule Rubber Co., of which W. O. Franklin is the president and general manager, and a factory of the Moctezuma Rubber Co. Two other



DRYING ROOM IN THE GUAYULE FACTORY.

factories are planned for this section, one for the International Guayule Rubber Co., and one for parties not yet named.

THE PATENT QUESTION.

UNDER Mexican laws anyone is granted a patent for anything without examination or protection. To enjoy its benefits and shut others out the granted patent must be examined and its novelty certified to by the government. If this is done he is protected; if the examiner reports no novelty the public is free to make use of the machine or process claimed. There is, however, the opportunity of appeal in lesser courts, and up to a supreme court in case of an adverse decision.

Most of the manufacturers of guayule rubber in Mexico claim that of the many patents taken out in the republic none can be protected. Two large companies, however, who have bought many patents and taken out others, are equally firm in their conviction that their patents at least are good and are prepared to put up all the money necessary to back up their opinion.

GUAYULE IN THE RUBBER FACTORY.

RUBBER manufacturers were somewhat afraid of guayule when it first appeared on the market because of its softness and its slow vulcanizing qualities. They have, however, by learning to use the rubber, overcome most of the apparent difficulties and find it available for a great many types of goods. For example, it makes an exceedingly strong hard rubber, although it must be combined with a better grade of rubber. It, however, gives a gloss to ebonite that makes very beautiful goods. In mechanical goods, and, indeed, in all soft rubber work, it needs the addition of ingredients that are of a drying nature. For this reason it works exceedingly well with the dryer and harder types of reclaimed rubber, and with such intractable gums as balata.

[CONTINUED NEXT MONTH.]

COTTON PRODUCTION AND PRICES.

A PROPOSED INVESTIGATION.

WHAT controls the price of cotton? The United States congress is determined to find out, an inquiry to this end having been introduced by a member from Massachusetts, the leading American state in the cotton goods industry. The effect upon the trade of cotton exchanges will be gone into, but the inquiry will not stop at this. The Southern Cotton Association—composed of growers—is likewise to be investigated.

It may be recalled that at the third annual convention of the Cotton Growers' Association, at Birmingham, Alabama, on January 17 last, its president, Harvie Jordan, asserted that at the time of the first meeting (in 1905) "the price of the great staple crop of the South had been depressed to 66 cents per pound, through the manipulation of speculative influences, and financial wreck and ruin faced the agricultural, industrial, and financial institutions of the South." After reviewing the work of the association and its effect in advancing prices, "in the face of the largest crop ever grown," Mr. Jordan continued: "This association has within two years established a fixed minimum basis of 10 cents a pound for American cotton, and that price is now recognized as unalterable throughout the entire cotton spinning area of the world."

COTTON IN BRITISH WEST AFRICA.

AT the ceremonies attending the opening of the new Liverpool Cotton Exchange, the dominant note of the speaker was that the result of the efforts already put forth for the cultivation of cotton in the British colonies gave promise that the British cotton industry in time would become practically, if not wholly, independent of foreign countries for the supply of raw material. The British Cotton Growing Association, with the support of the Lancashire cotton spinners, has been active lately in promoting cotton culture in West Africa. Britain obtained from her colonies there 1,241,408 pounds of cotton in 1905, against only 14,000 pounds in 1901. The colony of Lagos alone, which supplied 2,834 bales in 1905, produced 5,843 bales of a high quality last year. The Duke of Marlborough and his cousin, Mr. Winston Churchill, M. P. (of the British colonial office), have been particularly active in encouraging the work of the Cotton Growers' Association. But vastly more must be done before Britain's consumption of cotton can be supplied by her colonies, as will be seen by this comparative statement of British imports of cotton:

	1901.	1905.
Total imports—pounds	1,829,710,064	2,203,595,520
From British colonies	38,105,864	51,626,512

This table does not include Egyptian cotton as British grown. India supplied the greater part of the cotton classed here as colonial.

PRODUCTION AND CONSUMPTION.

THE United States Census Bureau has issued a bulletin on the "Supply and Distribution of Cotton," containing some facts of interest in connection with a recent suggestion in these pages that the high prices of cotton are a direct result of the increasing demand for this material, as compared with production.

Dealing with the world-wide position the report says: "During the year [ending August 31, 1906], the production of cotton for factory consumption was about 16,500,000 bales, whereas the consumption was 17,879,137 bales, indicating that the year's growth was inadequate to the requirements of the year by about 1,400,000 bales. The shortage in the production was made good by drawing upon accumulated stocks."

The distribution of the cotton industry is very widespread, and cotton is produced in many countries, but two-thirds of the total supply, it is estimated, is furnished by the United States. The question now, however, is to what extent the world's increasing demand for cotton is to be met by the other producing countries. The production in Egypt is often mentioned, but this appears not to be increasing. At least, the United States Census Bureau reports that the Egyptian crop for 1905 was 1,180,641 bales (of 500 pounds), while the average for the preceding eight years was 1,216,039 bales.

On the whole, the increase in production of cotton abroad appears to correspond closely to that in the United States, according to the excellent annual publication, "Cotton Movement and Fluctuation" (New York: Latham, Alexander & Co.). It supplies these figures for two periods, twenty years apart:

	1885-86.	1905-06.
United States production—bales	5,984,000	11,048,000
All other countries	2,234,000	4,772,000
Total	8,218,000	15,820,000

The figures given by different statisticians differ somewhat, as might be expected, but all authorities are agreed upon the growth of production of cotton outside the United States. It is to be remembered that cotton was known and widely used before the discovery of America, and that the English cotton industry was established before the United States began to export cotton.

ONE KEMPSHALL GOLF BALL PATENT VOID.

A PATENT on a playing ball (United States No. 761,590) was granted on May 1, 1904, to Eleazer Kempshall, then president of the Kempshall Manufacturing Co. The core of the ball, designed primarily for golf, was built up of a continuous winding, in miscellaneous directions, of cured rubber strip; with hair or fibrous material interspersed in said windings; said strip being continued into tense windings in miscellaneous directions to form a tense layer over the center piece, after which the ball was completed by the addition of a shell. The product was called the "Kempshall flyer click ball," and made at Kempshall Company's factory, at Arlington, N. J.

Subsequently (November 18, 1904) the then secretary of the company, Mr. Royce, filed an application for a patent on the same invention, claiming to be the true inventor, the details of which he had communicated to Kempshall, with no idea that he (Kempshall) would apply for a patent. The examiners in chief at the patent office, upon the proofs submitted, awarded priority of invention to Royce, which decision was appealed from. Commissioner Allen, on a hearing of the appeal, has affirmed the decision of the examiners.

A POPULAR SCIENTIST ON TIRES.

THE scientific editor of the New York *Evening Post* thus discourses on the subject of vulcanizing rubber tires: "The old process was to vulcanize them at the usual temperature—280 degrees. Such a fierce heat did not tend to strengthen the rubber any. One day a bright idea entered a man's head: namely, that if the rubber was allowed to cook slowly it would probably be much more durable and wear longer. This was tried, and it is now vulcanized at a temperature of 40 degrees, taking five hours instead of half an hour at 280 degrees.

Outside the *Evening Post* office it is supposed that vulcanization cannot be accomplished at a temperature below the melting point of sulphur, which is 238° F.

UNCERTAINTY.—Discussing rubber prospects, *The Times of Ceylon* says: "But the question of price is one which rests upon the knees of the gods, and all that we can do is to argue as reasonably as possible from a given set of probabilities and possibilities.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

IT is interesting to note that the system of vulcanizing in a very short space of time at a high temperature, according to the Doughty patent, has amply fulfilled expectations. The patents connected with the process are in the sole possession of the Dunlop company, and it is only in the various works of this company in England, on the Continent, and in Australia that the process is in operation. Without committing myself to the exact accuracy of my figures, I may say that the actual time of vulcanizing is three minutes at, I understand, 370° F. In the case of cycle tire covers, to which it is practically restricted, the whole operation of putting in vulcanizing and taking out occupies only five minutes, and in this matter of saving time the Dunlop company have a decided "pull" over their competitors. When the process was first mooted there were plenty who prophesied disaster, but experience has shown that in the case of such comparatively thin rubber as cycle covers, uniform vulcanization can be effected. For thicker goods it is obviously unsuited, as the outside would be burnt before the inside was vulcanized. I have no knowledge as to whether the utilization of the high temperature process has gone beyond the cover. Of course, in the patents owned by the Dunlop company special reference is made to tires, the plant being designed to produce the cover in the exact form required without its having to be shaped in a ring, as when cured in the ordinary way in a flat mold or on a drum. Whether the combined application of high temperatures and short time generally is protected by the Doughty patent is a point on which I am not clear.

HIGH TEMPERATURE VULCANIZATION.

RUBBER gas tubing is largely used in chemical laboratories, and in the majority of cases the quality is the point which is considered before the price. Very few chemical operators know anything at all about the nature of the tubing, and are entirely in the hands of the laboratory furnisher. It is generally recognized that the red tubing is superior to the black, chiefly because the latter goes hard in cold weather and has to be thawed on commencing work on a winter's morning. Evidently such tubing has only been cold cured; when a more desirable process has been adopted it can be made quite equal to the red tubing as regards being affected by changes of temperature. The other day, when in the laboratory of a chemist holding a highly paid and important post, he told me that the red gas tubing which he bought for best quality was not as good as it used to be, soon becoming hard and inelastic. An inspection of the tubing in question aroused my suspicions as to quality, which were amply borne out by a rough analysis showing 68 per cent. of mineral matter. It is very unsatisfactory that tubing like this should be sold as best quality, especially where the purchaser goes to a dealer of repute and is willing to pay for the best article. It is quite probable that the laboratory furnisher knows no more about the nature of rubber goods than his customers do, but as in various other businesses dealers are being held responsible for their statements as to the quality it would seem advisable for those who profess to sell different qualities of rubber goods to be able to distinguish between them. I am not prepared to say what should be the exact limit of mineral matter in best quality gas tubing, but the coloring matter should certainly be antimony sulphide, and not red oxide of iron, nor need there be any barytes present. As regards the diffusion of coal gas through the tubing, it has been shown that this is less in the case of moderately compounded rubber than in the pure rubber and sulphur tubing; so, all things considered, the antimony red steam cured tubing, with a reasonable proportion of zinc oxide, seems to be the ideal tubing.

LABORATORY TUBING.

AN analyst writes to the editor of our London contemporary to ask what substances he is to look for, as he has to make some analysis of rubber goods. The editor in his reply evidently shirks the amount of work involved in making out a list, and rightly advises the applicant to purchase a book on rubber. I think the analyst in question is in for rather a tough time; evidently he knows nothing about the trade and so will not be able to tell by the class, quality, or look of the goods what substances may certainly be taken as absent. If he tests religiously for all the substances he sees mentioned in rubber literature as regular or suggested components of rubber goods he will have a herculean task calling for a fee which his client would doubtless consider beyond all reason. Without hinting at the probability of incorrect results being obtained by those who undertake rubber analysis for the first time, there can be no doubt of the advisability of employing an expert in such analysis. It is strange how little trouble people will take in the selection of a chemical consultant, though as in medicine so in chemical analysis there are numerous specialists thoroughly familiar with one particular branch of chemistry and whose fees are often less than those of men who do the work possibly for the first time in their lives. It is impossible for a general analyst to be up to date in the technology of all manufactures, or to lay himself out to undertake every class of work, and the remedy for inefficient work is a greater recognition on the part of individuals of their own limitations. This obtains to some extent at present, analysts engaged more particularly in one branch of work having agreements with others to pass on to them certain other classes of work. What is wanted is an extension of this spirit of cooperation, which is undoubtedly advantageous to the client and in many cases tends to relieve the inexpert chemist from much mental worry.

WHAT TO LOOK FOR IN RUBBER.

OF considerable interest is the table showing the resinous contents of raw rubber in the December issue of this Journal, as given by Mr. L. M. Bourne. The author remarks that the amount of resin in nearly every brand of rubber has increased during the last two or three years. Without wishing in any way to dispute this statement, which *prima facie* is supported by the figures, it should be borne in mind that analysts very often differ even when employing identical methods of procedure. I presume that the figures in question were got from the washed and dried rubber, and as the rubber was weighed after precipitation from the benzol solution by alchohol, the latter will contain as well as resin any saccharine and nitrogenous matteres the rubber contained. I am not prepared to say to what extent these other bodies would augment the resins when weighed with them, but in some brands, at any rate, I am sure they are not negligible. Again, some rubbers are very difficult to wash entirely free from fine sand, which unless special precautions were taken would be weighed with the resins. However, leaving out of account any possible sources of error in the analysis, how are we to account for an increase in resinous constituents all round the globe in the same period of time. Is the solution to be found in the higher prices prevailing and a consequent rush to get the product to market, without the usual amount of care being taken in the collection and transport? Of course it must not be overlooked that in the case of a good many rubbers great discrepancies are observable in the figures given in the previously published tables, and it does not admit of doubt that the resin in many brands of rubber varies considerably not only in different consignments, but in parts of the same consignment. In giving the name of a rubber it is also necessary to say whether it has been graded. A striking figure

THE RESIN CONTENT OF INDIA-RUBBER.

in the list under notice is the 24.2 per cent. of resin for Mozambique rubber, previous figures being 3 per cent. by Terry, 3.2 per cent. by Weber, and 8 per cent. by Clouth. It rather looks as if different grades were tested. In one or two other cases discrepancies almost as startling are shown, and it seems clear that close attention cannot yet be paid by the practical man to any of the figures published.

RECLAIMED RUBBER.

ACCORDING to sundry evidently inspired articles which have recently appeared in the daily press, the new Anglo-Continental Rubber Co. have solved a problem of the greatest importance towards the solution of which little or nothing has been hitherto done. A good many of the statements I have read do not err on the side of accuracy with regard either to the past or the present of the reclaimed rubber industry. But not to labor this point, it is understood that the new company, which is stated to have a capital of £300,000, is already erecting a factory in Paris and has a London one in contemplation. The main point about the process, which is the invention of a Swiss chemist, is the solution of the waste rubber in some special solvent and the reprecipitation of the rubber by alchohol. It differs therefore from the processes usually followed in that the mineral matter is separated from the rubber and any canvas insertion also. There is nothing new in procedure of this sort, except in the value of the rubber obtained, this having been testified to by Mons. Rene Bobet, a French expert authority. Up to the present the processes involving the solution of the rubber in some organic solvent and its reprecipitation have not been proved successes, partly owing to the cost of the chemical treatment and also because the rubber has been deteriorated in quality by the chemical treatment. With these few remarks I shall quit the subject until an opportunity is afforded of judging the quality of the rubber produced by this new process.

Now that a prominent Russian rubber factory is making reclaimed rubber and selling it in England, am I to presume that the old time exportation of old goloshes from Russia to America has died out?* It may or may not be generally known that the Russians use a better quality of rubber for their uppers than the Americans do, this being the cause of the eagerness with which the latter imported the old Russian goloshes until the export duty put on a year or two ago put a spoke in the wheel of the business. The agents in this country for the Russian reclaimed rubber will have no need to proclaim the merits of their goods from the house tops, but all the same they will find plenty of competition. For example, there will soon be the output of the new Leyland works, recently referred to in these notes, to be reckoned with .

THE WINTER IN GREAT BRITAIN.

THIS should prove a better season than last one for the rubber boot dealers. The heavy snow at Christmas caused a rush on the shops all over the country and I heard of several dealers being sold out of stocks in London. Enquiry at the headquarters of the United States Rubber Co., in Farringdon street, showed that extreme activity in business was experienced at Christmas. A dealer at Kings Lynn, according to the newspaper reports, appears to have done a good stroke of business, as well as obtaining a good advertisement, in fitting out the royal guests at Landringham. The second spell of cold weather, at the end of January benefited the skate dealers rather than the rubber shops as the frost was unaccompanied by snow. There has been a considerable demand this winter by ladies for the fishing boot type on the ground that it is much more effective than the ordinary golosh. The usual complaints were rife in London with regard to the laxity of the authorities in removing the snow, but it really is a big problem. The method now generally adopted is to sprinkle salt on the snow and then to flush it into the sewers by hose pipes from the street mains. While this is in operation it is almost impossible to cross the streets for the rivers of mud, and the trouble is augmented when the sewers get choked up. In the provincial towns carting away the snow is the process still generally adopted.

FENTON.

IT is such a long time since I heard anything of Fenton rubber that I was surprised to be told by an acquaintance that he had met Mr. Fenton recently, and was told that an improved rubber substitute would shortly be on the market. Fenton's original patent was taken out in 1896 and is now, therefore, nearing the end of its life. Unless I am very much mistaken it did not prove an unqualified success, and there is certainly room for a new patent involving improvements..

* The imports of waste rubber into the United States by no means show a tendency to decline. The official statement of weight (in pounds) of such imports for the past three calendar years has been: 23,742,451 in 1906; 24,190,040 in 1905, and 16,839,274 in 1904. It is too early yet to learn how much of this came from Russia. But during the fiscal year ended June 30, 1906, the imports direct from Russia were larger than in the preceding year, though not up to the record figures in 1903-04.—THE EDITOR.

BALATA AND THE CUSTOMS.

THE customs authorities of the United States continue to be confronted by questions growing out of the importation of balata, either raw or manufactured. The New York Leather Belting Co. recently protested against an assessment of duty on balata belting at the rate of 35 per cent *ad valorem*, claiming that the goods should have been admitted at 20 per cent. The board of general appraisers at New York sustained the assessment, in support of which reference was made to several prior decisions by the board. It happens that balata is nowhere mentioned in the Tariff act. The question arising at one time as to the rate to be charged on manufactures of balata, it was decided that in view of the similitude of balata to gutta-percha, the rate on manufactures of which is 35 per cent, this rate should apply to goods in which balata is the component article of chief value, and this has since remained the attitude of the local authorities. Importers, however, contend that balata goods should be dutiable only at 20 per cent as "unenumerated manufactured articles." [See THE INDIA RUBBER WORLD, April 1, 1902—page 230.]

No final decision has been reached as yet in the matter of the various protests against the payment of duty on raw balata. It will be remembered [see THE INDIA RUBBER WORLD, November 1, 1905—page 44] that the collector at Norfolk, Virginia, was first to assess a duty on an importation of balata—on the ground that he found it nowhere mentioned in the Tariff act—as an unenumerated raw material, the rate on which is 10 per cent. The importer protested, urging that balata on account of its similitude to india-rubber or gutta-percha, both of which are admitted free, should have similar treatment. The board of general appraisers at New York sustained the Norfolk collector, having already gone upon record in dealing with imports of manufactures in a decision that balata was a different substance from the other gums named.

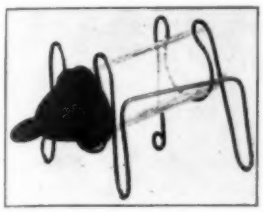
Subsequent protests were made in connection with imports of balata at New York, and evidence adduced to prove balata to belong to the same class of commodities as india-rubber and gutta-percha and also to indicate that such was the belief of the framers of the Tariff act, thus explaining the failure to enumerate balata specifically. The customs appraisers, however, failed to be convinced, and the matter has been carried to Washington.

THE product called "aluminum flake," and marketed as a substitute for zinc in the rubber manufacture, is meeting a ready sale. It is understood that the Aluminum Flake Co. (Akron, Ohio) already are selling to about fifty rubber factories, in addition to some of the best paint companies. During the last half of 1906 the company named sold more than 1,500,000 pounds of aluminum flake.

New Goods and Specialties in Rubber.

THE HYGEIA NURSING BOTTLE HOLDER.

IT was a happy thought that prompted the patenting by Alfred H. Oberg, of Belle Fourche, North Dakota, of the hygeia nursing bottle holder. This holder can truly be called the mother's friend. It holds the bottle firmly in position, and in just the right way to enable the milk to be used to advantage. This little invention, as the illustration shows, is simple in design and absolutely no work to care for, while its use saves the mother much time. It is intended especially for use with the hygeia nursing bottle which is manufactured by the company bearing that name in Buffalo, New York.



NURSING BOTTLE HOLDER.

THE GILBERT PONCHO AND HELMET.

THESE articles of automobile apparel are something quite new, and apparently well worth the attention of the autoist. They are the product of the Gilbert Manufacturing Co. (New Haven, Conn.), which company has been styled "the automobile protectionist," so many stormproof covers of various descriptions having been of their manufacture. These, too, have been about evenly divided between car and occupants. The poncho, which is illustrated here, extends down to the waist, has a close fitting yoke collar fastened with large snap buttons, and is a desirable article for use during stormy or cold weather. It is made from the best quality of rubbered cloth which makes it stormproof in more than name. For those desiring complete protection of face, head and chest when riding at speed, or for protection when exposed to stormy or very cold weather, the helmet is provided. It fits snugly, buttoning down over the chest, and is not in any way clumsy or unsightly. The material is fleece-lined rubber cloth, and it is made in hat sizes.

GILBERT PONCHO.

GILBERT HELMET.

LA CROSSE "RED FIBER" RUBBER HEEL.

THE La Crosse Rubber Mills Co. (La Crosse, Wisconsin), in addition to their regular line of footwear, are bringing out a full line with "red fiber" heels. These are referred to as wearing much longer than most heels, and never bursting out.

AN AIR TIGHT TIRE JOINT.

WHAT appears to be a good idea in tire making has been evolved from the inventive brain of a Massachusetts man. It consists of combination cushion, single tube and pneumatic tire, supplied at the head with an air tight, dovetailed joint between the clincher heads. Unusually thick and strong canvas is used, and there is enough rubber combined with it to afford the highest degree of resiliency and strength to the completed tire. The head is stiffened with a wooden core which follows the clincher and gives ample purchase for holding the flanges in place. Above the flanges there is a reinforcement of rubber that is intended to prevent rim cutting. The surfaces of the dovetailing are covered with soft rubber, so that when the flanges are pressed together the joint is absolutely air tight, no matter how much pressure may be exerted by the pump. Mr. Newton Crane, of Boston, is the inventor.

"SO LITE" RUBBERS.

THE light rubber shoes, for ladies' wear, made by the dipped process, and known to the trade as the "So Lite" goods, have had mention before in these columns, but are referred to again in order to introduce an illustration of them. They are particularly adapted for use in showery weather, or to be taken on a trip when rain is threatening. [The "So Lite" Rubber Co., Rochester, New York.]

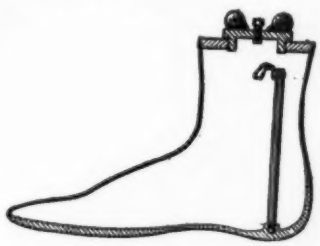
"SO LITE" RUBBER.

FLEXIBLE GAS TUBING.

GAS tubing that is not gas tight, as some one has suggested, might as well be used for a child's jumping rope as for any other purpose, and much better for that than an attempted use for gas tubing. The Clayville Manufacturing Co. (Providence, Rhode Island) is making a specialty of manufacturing a tubing of unusual thickness and of a specially fine quality of rubber, making the essential object for which tubing is made the primary consideration of their product. Much time has been employed in perfecting the details of manufacture and every possible consideration for the matter of durability has been considered. Every piece of tubing is tested at 20 pounds vacuum pressure instead of 10 pounds, the amount of pressure often used.

PNEUMATIC SHOE TREE.

THE illustration relates to a recently patented Pneumatic Shoe Tree. In this design the upper and ankle are composed of elastic material, and the sole is flexible at the waist, while at the heel and toe it is stiff. Interiorly it is provided with means detachably connected to the heel portion for forcing the tree into the boot or shoes or for withdrawing them. There is also means attached at the upper part of the ankle for opening or hermetically closing the tree. Provision is likewise made for inflating the tree. David M. Reid, Mingo Junction, Ohio, is the patentee.



PNEUMATIC SHOE TREE.

FANCY STOPPER TOP.

IN a wild flight of fancy some genius has conceived an idea of his satanic majesty, than which nothing more satanic could be desired by the most daring, and this genius has been successful in having the witchery of thought escape through his finger tips, and the result is a grotesque rubber head adorned with brilliant red horns, ears, eyes, nose and lips of red, while a red tongue of enlarged proportions protrudes from between open lips, the whole surmounting a bottle stopper. One is not quite sure whether the tongue is supposed to indicate certain gastronomic

effects as a result of contemplating the contents of the bottle which this head covers, or if the protrusion is in derision of all those who pass by on the other side. The same expression would serve both ends. An old fashioned "dickey" of exaggerated size in white rubber, and a cravat to match horns, ears, eyes, nose, lips and tongue complete the stopper adornment. [The Hanover Rubber Co., Limited. George Borgfeldt & Co., Nos. 48-50 West Fourth street, New York, sole agents for the United States and Canada.]

FUR-TRIMMED RUBBER FOOTWEAR.

WOMAN'S RUBBER BOOT—PELZ TRIMMING.

THE illustrations herewith relate to a style of rubber footwear very popular in many parts of Europe, though unlike any of the brands of American production. As will be inferred, these boots are intended as a protection against deep snow, and also against cold. In addition to being felt lined, they are heavily trimmed with furs, with the idea of giving them the appearance of being comfortable as well as being such in reality. There is, of course, such a wide range of furs that prices may be arranged to suit purses of varying capacity. A very neat trimming at a moderate price is of *krimmer*, which is very similar to astrakhan, and is gray in color. Goods of the type here illustrated are made for women, misses and children. [Etablissements Hutchinson, Mannheim, Germany.]

WOMAN'S RUBBER BOOT—KRIMMER TRIMMED.

THE MALLORY CRAVENETTE HAT.

A HAT that is rainproof as well as sunproof has distinct, not to say economic, advantage over a hat of the ordinary type. The Mallory is simply a fine fur felt in quality, plus the value that comes from the Priestley Cravenette finishing process. In unexpected shower or under a scorching sun, and when the elements are less severe, the same hat may be worn without protection and without fear of its being made to suffer in appearance in consequence. The styles are up to date, both in soft and stiff felt. [E. A. Mallory & Sons, Inc., No. 13 Astor place, New York.]

PNEUMATIC SUCTION HORSESHOE PAD.

A HORSESHOE pad which has been patented recently not only in the United States, but practically all over the world, has been given the very euphonic and picturesque name "Sure Foot." The accompanying illustration shows, in a measure, the general make-up of the pad. Under the central raised portion, which is of rubber, a trifle more than a quarter of an inch thick, is sheet leather, which is vulcanized to the rubber. This gives a cushion effect under the central circular portion. [Consolidated Hoof Pad Co., No. 18 Vesey street, New York.

"SURE FOOT" HORSESHOE PAD.

GOODRICH WATER JACKETS.

WHEN heat or cold is desired in case of sprains, fractures, dislocations, etc., these water jackets are substituted for the ice bag and hot water battle with most gratifying results. Good results have also been obtained when the jackets have been used in myalgia, arthritis, rheumatoid, and other affections of the muscles and nerves. They are simple in construction and adjustment, being made of an inner and outer tube of pure gum cemented together at the top and bottom. Iced or hot water is forced between the two tubes with a bulb syringe from a fountain bag or from a faucet, through an inlet tube. The more water forced in between these tubes, the tighter the jacket fits and the more the pressure increases. When a continuous flow of water is necessary the lower or outer tube will allow of regulating the flow through a stopcock. The jackets, of which a specimen is shown in the cut, are made in knee, ankle, wrist, and elbow size. [The B. F. Goodrich Co., Akron, Ohio.]

GOODRICH WATER JACKET.

PIKE'S RUBBER BRUSH.

THE number and variety of bath, toilet, shampoo, and massage brushes on the market are almost without limit, each one having its special feature and special argument addressed to the trade and the public. One of these brushes that has the merit of being attractive looking, and lays claim to being a big seller, is Pike's Rubber Brush. It may be used as an invigorator during the bath; it may also be used for a shampoo or for purposes of massage for the body or the scalp, and last but not least as a complexion brush. By rubbing the face with the brush dry, it produces a glow and exhilaration, healthful, desirable and becoming. Ladies more especially appreciate this function of the brush and their use of it is widespread. Inasmuch as their artistic sense is supposed to be more highly developed than that of "mere man," the combination of utility and beauty appeals to them, and the plainer brush, while it serves its purpose does not serve theirs—and the more attractive production finds its way to "my lady's" lavatory. [O. C. Pike, Akron, Ohio, figure among those who manufacture this attractive brush.]

CYCLE TIRES IN DEMAND.—The London *Statist* says, in an article on the British cycle trade: "Speaking generally, the year just ended has proved one of the most satisfactory that the trade has yet had—the works have been busier and the output greater than at any other period. On the other hand, the larger output has been accompanied by a smaller margin profit than was the case when there was a 'boom' in the industry in 1897. So that with a broader basis the trade is in a healthier condition."

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JANUARY 1, 1907.

NO. 839,811. Hose nozzle. F. J. Christman, assignor to J. R. Clancy, both of Syracuse, N. Y.

839,834. Rubber mat. [Comprising two sheets, each ribbed on on one side only, placed one over the other with the ribs on the upper sheet crossing those on the lower sheet, so as to form communicating air channels.] R. K. Gray, London, England.

839,851. Machine for manufacturing hose or tubes. C. Hyde, New York City, assignor to Alphaduct Mfg. Co., Jersey City, N. J.

839,886. Safety rubber heel. E. G. Perkins, assignor of one-half to A. R. Polsky, both of Vallejo, Cal.

839,928. Electric heating attachment for hot water bags. C. Van D. Hill, St. Louis.

840,060. Heating attachment for hot water bags. C. Van D. Hill, St. Louis.

840,066. Conduit. [For electric wires.] L. A. Jones, Cambridge, Mass., assignor to American Circular Loom Co., Chelsea, Mass.

840,081. Storm apron. A. J. Miller, Henderson, Ky.

840,160. Pneumatic tree [or form for boots and shoes.] D. M. Reid, Mingo Junction, Ohio.

840,169. Bathing hood. R. Stollberg, assignor to D. C. Hall & Co., both of New York City.

840,209. Tire. [Comprising a fabric having a plurality of layers of rubber thereon, the layers differing in hardness, and studs extending from the outer surface of the fabric through the rubber portion to the tread surface.] G. E. Heyl-Dia, Streton, England.

840,289. Hose supporter clasp. P. S. Bauer, Chicago.

840,328. Horse brush. J. S. Hickson, Charlottesville, Va.

840,334. Process of making shoes for pneumatic tires. J. W. Hyatt, Newark, N. J.

840,349. Pencil holder. S. J. Lester, Otter Pond, Ky.

840,355. Hose supporter. M. R. Lyle, Oakland, Cal.

840,359. Suspenders. C. A. Murray, Cumberland, Wyo.

840,372. Eraser tip for lead pencils. L. J. Reckendorfer, New York City.

840,401. Hard rubber composition ball and process of making the same. E. F. Upton, assignor of one-fourth each to E. Van Kirk, D. O. Van Kirk and M. E. Fisher, all of Mineral City, Ohio.

840,456. Fountain pens. B. L. Goldsmith, New York city.

ISSUED JANUARY 8, 1907.

840,469. Apparatus and process for filling rubber tires with viscous liquids. C. W. Berry, Portland, Me.

840,472. Syringe. R. C. Brooks, Waelder, Tex.

840,485. Eraser. Eberhard Faber, New York city.

840,503. Vehicle tire. [A tire casing having two metallic rings embedded therein, one at each side of the tread, and a woven wire strip carried thereby and disposed there between.] A. H. Marks, Akron, Ohio.

840,560. Vaginal irrigators. C. O. Farrington and Thomas Watson, Sealy, Tex.

840,593. Vulcanized joint for vehicle tires. [A thin insert of vulcanizable rubber is placed between the opposed ends of a solid rubber tire, the whole being vulcanized together to form a homogeneous union.] W. F. Stearns, Batavia, N. Y.

840,642. Machine for wrapping tires. C. E. Miller, Anderson, Ind.

840,749. Vulcanizing mold. H. Z. Cobb, Chelsea, Mass., assignor to Revere Rubber Co., Boston.

840,938. Tool for manipulating pneumatic tires. L. L. Heller and C. W. Hancock, Binghamton, N. Y., said Hancock assignor to said Heller.

ISSUED JANUARY 15, 1907.

841,121. Machine for preparing rubber shoes. J. F. Cavanaugh, Providence, R. I., assignor to the United States Rubber Co.

841,127. Stocking supporter clasp. G. Devoll, Boston.

841,146. Pneumatic massage apparatus. S. Hasbrouck, Providence, R. I.

841,155. Tire protector. [A metallic shield engaging the tread surface of a rubber tire.] O. Kelly, Orcton, Ohio.

841,282. Overshoe holder. W. H. Tillson, Quincy, Ill.

841,430. Hose supporter. Eugene Pearl, Passaic, N. J.

841,448. Horseshoe. J. F. Robinson, Rockaway, N. J.

841,473. Traction device for vehicle wheels. [In the nature of a chain grip for rubber tires.] H. S. Weaver, Butler, Penn.

841,475. Self-filling fountain pen. P. E. Wirt, Bloomsburg, Pa.

841,505. Vehicle tire. [A core for elastic tires, comprising a plurality of loosely twisted strands of wool surrounded by and compressed within a covering of cord wound about said strands.] F. M. Georgi, Chicago.

841,619. Locking device for tire retaining attachments. R. S. Bryant, Columbus, Ohio, assignor to the Bryant Steel Wheel and Rim Co.

Trade Marks.

15,424. H. M. & S. Armored Tire Co., Pittsburgh, Pa. The words *H. M. & S. Armored* in fancy type. For marking rubber tires.

22,676. The B. F. Goodrich Co., Akron, Ohio. The letter *G* enclosed in a garland of leaves. For marking belting, hose, machinery packing, gaskets, tubes and the like, made wholly or partly of rubber.

ISSUED JANUARY 22, 1907.

841,801. Wheel rim. Thomas Midgley, Hartford, Conn., assignor to the Hartford Rubber Works Co.

841,802. Wheel rim. [With removable side flange having a joint therein and a clip or cover for said joint secured to the flange and provided with means of fastening it in position.] *Same.*

841,958. Clearing device for pneumatic tires. W. R. Frommater, New York city.

841,968. Vehicle tire. [Armor for the inner tube.] F. Hitchcock, assignor of one-half to F. H. Stevens, Freeport, N. Y.

842,001. Vehicle spring buffer. [Comprises tubular telescopic members, a cap plate on the upper member having upwardly extended tapped lugs, a rubber cushion seated on said cap, and screws engaging in lugs and against cushion.] P. McKay, assignor of one-fourth each to C. Ribatto and J. A. Osborn, all of Day Dawn, Western Australia.

842,102. Disk wheels for road vehicles. [With elastic tire.] E. Martin, Battersea, England.

ISSUED JANUARY 29, 1907.

842,217. Method of forming inner tubes for tires. A. H. Marks, Akron, Ohio.

842,231. Pneumatic tire. [Continuous elastic tire having outwardly projecting clencher engaging flanges, and wear resisting facing pieces between said flanges and the tread portion of the tire, the facing pieces being separated from each other by intermediate portions of the elastic body of the tire, and composed of a material which is free from liability to crush the body portions of the tire bearing on the edges of the said facing pieces.] V. H. McDowell, Lynn, Mass.

842,252. Truss. J. Sault, Queensbury, N. Y.

842,304. Door check. C. G. Deming, Kingston, N. Y.

842,316. Horseshoe. [With resilient heel pad.] J. P. Hoppesch, Chicago.

842,385. Carpet cleaning machine. L. B. Cobb, Stoneham, Mass., assignor to American Carpet Beater Co., Boston.

842,502. Weather strip. W. U. G. Shaw, Battle Ground, Ind.

842,524. Hair comb. F. S. Cartwright, Chicago.

842,677. Suspenders. C. Ludolph, Berlin, Ontario.

842,709. Vehicle wheel. [Comprising a tire section and hub section, with a cushioning section of resilient material interposed between.] J. C. Underwood, New York city.

842,750. Hose supporter. J. C. Beach, Shirley, Mass.

842,839. Elastic substance similar to India rubber and its method of manufacture. [The process consists in mixing glycerine, gelatine and chromates with water, and allowing the mixture to set while retaining the water of hydration in combination, whereby is formed a solid hydrated compound devoid of free water and insoluble in water.] Lucien Roland, Paris, France.

Trade Marks.

23,246. Lawton & Hall, Chicago. A duck represented as swimming, over which are the words *Duck Brand*, and underneath, *Sheds Water*. For marking rubber coats, blankets, boots and shoes.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1905.

* *Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 28, 1906.]

18,028. Coupling for fire and other hose. W. Goodwin, South Hayling, Hampshire.

18,043 (1905). Pneumatic tire. T. Dunn, London.

*18,049 (1905). Finger exercising apparatus for musicians. E. B. Kursheedt, East Orange, New Jersey.

18,167 (1905). Elastic tire. [Several layers of felt are thoroughly saturated with india-rubber, of which two or more are cemented together to form a complete tire suitable lengths are vulcanized.] R. J. C. Mitchell, Springfield, near Manchester.

18,176 (1905). Waterproof apparel. [Coats are provided with inflatable rubber bags, on the inside. When slightly inflated these are claimed to add to the protection from cold.] T. Beahon, Barrow-in-Furness.

18,308 (1905). Vehicle wheel with pneumatic tire. A. and E. H. Pulbrook, London.

18,308A (1905). Vehicle wheels. E. H. (executrix of A. Pulbrook) and E. H. Pulbrook, London.

18,396 (1905). Pneumatic tire. [The tread is covered by sheathing of metal, wood or hard rubber, the edges of which rest in channels formed by shoulders on the air tube.] A. J. Boult, London. (A. E. Henderson, Toronto, Ontario.)

18,420 (1905). Pneumatic tire. [With removable armoured tread.] J. J. W. Hodgetts, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 31, 1906.]

18,578 (1905). Pneumatic tire. [To obtain a flat seat for the junctions of non-continuous air tubes, rubber cushions, preferably with tapering ends, are fitted in the wheel rim.] O. Englebert, Liege, Belgium.

18,649 (1905). Waterproof flounce for ladies' dresses. H. M. Lodge, Eastbourne.

18,669 (1905). Spring wheel and solid rubber tire. R. Midworth, London.

18,734 (1905). Pneumatic tire. [Composed of a series of inflatable segments.] W. J. Baird, Bury, and J. E. Hargreaves, Manchester.

18,825 (1905). Pneumatic tire. [A detachable flange for securing tires in position on the felloe.] A. Birchall, Liverpool.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 9, 1907.]

18,874 (1905). Reservoir pen. [Attachment for determining whether the pen is charged with ink.] R. MacDougall, Glasgow.

19,203 (1905). Pneumatic tire. [To prevent transverse extension of leather covers or protectitve bands after they have been applied to the tire, the leather is, previous to the making of the cover, stretched in a direction transverse to the circumference of the band.] H. Staub, Manndorf, Switzerland.

19,217 (1905). Waterproof coat cut in a single piece. P. H. Davy, London.

19,227 (1905). Vehicle wheel. [Combination of a spring wheel and solid rubber tread or tire.] C. H. Wilkinson and J. H. Kaye, Huddersfield.

19,266 (1905). Device for carrying spare tires when motoring. A. W. Southey, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 16, 1907.]

19,334 (1905). Elastic tire [built up of layers of leather set on edge, with or without a supporting cushion of rubber]. W. M. Bowron, Motor Mills, Kent.

19,543 (1905). Pneumatic tire. [Anti-skidding cover composed of transverse leather or other flexible strips.] H. J. A. Brisson, Clinchy (Seine), and P. Schmitt, Paris.

19,621 (1905). Vehicle wheel. [Relates to means of attaching india-rubber tires, vulcanized to steel rims, to the wheels of heavy automobiles.] Societe Anonyme des Etablissements Falconnet-Perodeaud, Choisy le Roi, France.

19,662 (1905). Vehicle wheel. [Double disk wheel, having continuous or preferably block tires of rubber, fitted; with continuous metal tread band having side wings which may be formed integral with the band or screwed on and locked by pins.] R. T. Smith, Warrington.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

366,309 (May 16, 1906). Société Anonyme "Le Centaure." Antiskid.

366,530 (May 23). H. Bell. Spring wheel.

366,590 (May 26). G. Mönnig. Elastic tire.

366,622 (May 28). A. Vogelgesang. Improvements in insulation.

366,564 (May 25). V. A. Boucheson. Process for making rubber solution, etc., uninflammable.

366,615 (May 26). Société Harvey Frost & Co., Ltd. Portable vulcanizer.

366,801 (June 2). A. Dow. Self-sealing tire.

366,926 (June 7). Société Michelin et Cie. Tire cooling process.

366,805 (June 2). W. A. Köneman. Rubber reclaiming process.

366,806 (June 2). *Same.* Rubber reclaiming process.

366,808 (June 2). E. de Dorlodot. Artificial rubber.

366,998 (June 8). L. Kusnick. Tire inflator.

367,016 (June 9). O. Tailfer. Tire protector.

367,070 (June 12). E. Hopkinson and Medgley. Vulcanizer.

367,175 (June 14). Société des Jantes Amovibles M. L. Method of mounting removable rims upon fixed rims.

367,295 (June 20). Société Continental Caoutchoue and Gutta-percha Co. Cover for pneumatic tires.

367,389 (June 9). Société Michelin et Cie. Tire valve.

367,421 (June 25). Moizard. Spring wheel.

367,447 (June 26). W. S. Smith. Antiskid tire.

367,472 (June 27). M. M. Desson. Utilizing gums fro certain *Sapotaceae.*

367,618 (May 28). E. L. C. Roussier. Hair cloth or felt steeped in rubber cement.

367,529 (June 13). G. L. Leurson. Spring wheel.

367,530 (June 14). Stephane. Puncture-proof tire.

367,586 (June 30). F. Rich. Tire tube.

367,653 (May 17). W. B. Hartridge. Elastic tire and wheel.

367,669 (June 19). Rodgers and Prince. Tire cover.

367,689 (July 3). Kempshall. Wheel tire.

367,824 (June 29). E. Dunn. Elastic tire.

367,829 (July 6). Arnoult. Elastic tire.

367,643 (July 3). Ephraim. Process for forming articles from caoutchouc.

367,774 (July 5). Société Geoffroy and Delore. Cable insulation.

367,860 (July 7). Société anonyme des pneumatiques Cuir Samson. Removable rim.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE LATEST AUTOMOBILE APPAREL.

WHATEVER the visitors to the great automobile shows may go to see, they will find bids for their attention made by the exhibitors of many other articles than automobiles. The fact that there are certain accessories without which motoring would not be comfortable, or even practicable, and the makers of such goods flocked to Madison Square Garden (New York) at the recent show to place them upon exhibition. Particularly was motoring apparel in evidence, and in great variety, forming one of the most interesting features of the show.

Authorities on the subject say that the 1907 woman motorist must have five different costumes. These are a satin rubberized coat for rainy weather; a full length duster for touring and windy weather, driving in the city; a long coat for shopping trips; a heavy fur coat for all round winter use, and a waterproof leather coat for cold weather.

The numerous styles of headgear include caps of fur, rubber and cloth for winter, and of silk, mohair, pongee and linen for summer. Then, for protecting the back of the head and neck, there are many varieties of dust-proof hoods and capes. Hoods, as a rule, now take the place of goggles for women, but there are some made of gauze wire with detachable pongee masks.

In men's apparel the most important acquisition is a fur coat reaching to the ground. One must also have a double-breasted coat. The correct thing for wet weather is a rubber shirt, with cap, hood and boots to match, either in red, gray, black or tan.

Fur caps to match coats or heavy leather caps are right for winter wear, while light leather and soft caps are in season at all times. The goggles most affected fit close to the face and do not interfere with the cap.

ENGLISH MOTOR APPAREL NOTES.

THE Dunlop company no longer confine themselves to the tire manufacture, but are prepared to supply many other accessories of motoring, not the least of which is an extensive line of motorists' apparel, all of which is waterproof. Their display of such goods at the recent automobile shows in London was remarked upon as being composed of garments that were at once smart and serviceable.

A motor coat made by a leading London firm is of conventional appearance when buttoned up, though possessing some distinctive features in construction. From the shoulder downwards there is an interior attachment made of wool or camel fleece, and buttoning fairly loosely. Round it are stitched a series of elastic bands, which keep the garment close to the body, and yet give the maximum of freedom.

A form of motorists' coat seen in London this winter serves all the purposes of a rug, and yet allows room for the steering pillar to pass between the legs. The front of this coat is in reality formed by expanding pleats, so arranged that when the wearer is seated, the pleats open, thereby allowing room for the steering pillar and giving great freedom to the legs by relieving the knees of weight.

The "Stuart Albany" ponchos, for motoring, made by a London firm, are made with drist straps, pockets, and a cleverly devised neck opening, which it is possible to close up practically watertight.

Rubber Men Hear Transportation Discussed.

NEW ENGLAND RUBBER CLUB'S DINNER.

GOOD company, good fellowship, good appetite are invariably the characteristics of the various meetings of the New England Rubber Club, and the rule held good at its annual midwinter banquet in Boston, on Wednesday evening, February 13, at the Hotel Brunswick. It had been intended to give this banquet at another place, and the arrangements had been perfected, when this announcement was sent out:

"The executive committee of the New England Rubber Club has to advise its members that, consequent upon an agitation undertaken at the present time by Boston's leading legal luminary with regard to the rights of private clubs in this city, it has been decided not to avail on this occasion of the kindly hospitality of the New Algonquin Club, and in substitution to hold the annual banquet and reception of the Club at the Hotel Brunswick."

But the rubber man can be happy anywhere, and especially happy they were in the parlors of the Brunswick, where President Paul introduced the guests of the evening to the members, while the entertainment committee saw to it that everybody knew everybody else. The dining room was tastefully decorated, and the dinner attractive in itself and delightfully served. There were present about 150 members and guests.

It was 8.30 when President Alexander M. Paul wielded his hard rubber gavel for the members to sit up and take notice. After a few words of welcome he called attention to the fact that the value of the total manufactures of New England in 1905 was $2,000,000,000, an increase of 25 per cent. over 1900. In the same time the increase in the value of rubber products was about 75 per cent., thus showing that while New England was making excellent progress in general manufacturing, the rubber industry was making a far better relative showing. Then, speaking of the importance of railroads to the progress of the country, he introduced as the first speaker Mr. T. E. Byrnes, first vice-president of the New York, New Haven and Hartford railroad.

* * *

JUST at this time the railroads appear to be the subject of adverse criticism, and Mr. Byrnes spoke on the defensive in his address on "Some Phases of the Transportation Question in New England." Mr. Byrnes believed that proper agitation of any important question would bring about benefits, but knowledge of the conditions is a prerequisite to proper criticism.

"The statesmen have been honestly trying," he said, "to solve the transportation problem, under the leadership of our country-loving President, Roosevelt, who has made honesty fashionable, and who has brought renewed honor and glory to the American nation. The difficulties between the transportation companies and the public seem to be: That the public believes that facilities are inadequate, that rates are too high, that railroads are arrogant and indifferent to public needs. The railroad interests claim railroad officers are intelligent and progressive, and that the demands and criticisms of the public are unfair and unjust."

In the old days of small, short line, locally owned and managed railroads, complaints were easily and quickly adjusted right on the spot. To-day, if a passenger makes a complaint, he usually does one of three things. He roasts the railroad in the newspapers; he introduces a bill into the legislature; or he goes to the club and orders a high ball and damns the management. It is the intention of the management of the New York, New Haven and Hartford to make it the model railroad of the country. New rolling stock has been ordered to the amount of $25,000,000. An improvement contemplated is to give additional service, using trolley lines to collect freight at the shippers' door, and delivering it, in the same manner on the premises of the consignee, thus saving cartage, which to-day frequently amounts to 50 per cent. of the entire freight charges.

It is to the interest of the railroad that manufacturing industries thrive along its line. Otherwise the road cannot exist as a paying institution. Therefore the railroad must take as great an interest in the prosperity of the manufacturers as if it were a partner in the business. To the people, we would say, stand up for your transportation companies as you do for your town. There never was a time when there were as many honest men in the country as there are to-night, and there never was a time when the railroads were endeavoring more to coöperate with the people on whom they depend for their own prosperity.

* * *

EX-CONGRESSMAN SAMUEL L. POWERS, of Massachusetts, was next introduced.

T. E. BYRNES.

SAMUEL L. POWERS.

CHARLES E. ADAMS.

Mr. Powers has recently become a railroad president, and felt proud of his new honor. The railroad is a trolley line which never paid a dividend, and the road cannot be discontinued or given away. But even under these adverse circumstances Mr. Powers was happy and genial and prolific of good anecdotes. Once only did he relapse into a state of prosternation and this was his wail:

"I used to take pride in living on a line of road where every stockholder was a New Englander and every officer lived along the line. Now, even the name of Boston has been erased from the running stock, and the railroad is run with New York capital. I cannot take a trolley line without patronizing one that is said to be owned in Wall street. I cannot telegraph without helping New York capitalists. I cannot talk through the telephone without adding to the wealth of capitalists."

Mr. Powers called attention to the wonderful increase in population and wealth of the country. In 1855 the population of the United States was 23,000,000 and the wealth $14,000,000,000. To-day, the population is 87,000,000 and the wealth of the country $100,000,000,000, and before the end of this century there will be 200,000,000 people in the country and the wealth will be at least $500,000,000,000. Interstate commerce in the time of our grandchildren, he predicted, will be twenty times what it is to-day, and

FRANK LINCOLN.

the railroads have not foreseen and provided for the tremendous increase which must come to them. The people have invested in the railroads one-twelfth of the entire wealth of the country. We need have no fear of governmental ownership of the railroads.

He advised the public to coöperate with the railroads that they may grow with the growth of the country, and that they may share in its prosperity, for this nation will, within the present century, control the destinies of the entire world.

* * *

PRESIDENT PAUL spoke of the advantages of organization and concerted effort. He gave some account of the benefits which had come to industrial and commercial New England, and then introduced Mr. Charles E. Adams, president of the Massachusetts State Board of Trade, whose subject was "The Usefulness of and Necessity for Mercantile Organizations."

Mr. Adams gave some account of the formation and work of his own association. He stated that the national department of commerce and labor was the result of a movement initiated in Boston; that the present state corporation laws are the result of the work of this organization; that this board petitioned and strongly urged legislation for municipal auditing and returns to the state in the same manner as is now required of private corporations, with the result that laws have been passed in part covering this policy.

MENU

Cape Oysters

Martini Cocktails — Olives

Radishes

Cream of Celery aux Souffles

Consomme Imperial

Zinfandel Sauterne

Fried Boneless Smelts, Tartar Sauce

Pommes Saute

Saddle of Southdown Mutton

Roederer Carte Blanche — Delmonico Potatoes

Stringless Beans

Lobster a la Newburg en Caises

ROMAN PUNCH

Roast Black Duck

Lettuce Salad

Fancy Assorted Cake — Harlequin Ice Cream

Fruit — Coffee — Cheese

In the matters of national legislation regarding postal laws, a marine subsidy, improved consular service, the enactment of pure food laws and other important national questions this association has coöperated with other kindred organizations in urging the passage of the pure food law; and another important measure was the passage of the following resolution:

That in the judgment of the Massachusetts State Board of Trade the time has now come when by treaty, neutral zones should be established between the ports of North America and the ports of Great Britain and Ireland, and the continent of Europe, within such zones steamships and sailing vessels in the conduct of lawful commerce shall be free to pass without seizure or interruption.

This resolution has been widely approved by business organizations in different countries, and President Roosevelt has been asked to have them presented to the Hague conference this year.

Mr. Adams advocates the formation of a body composed of associations representing each state in the Union, as an auxiliary to the department of commerce and labor in the presentation to congress of the commercial and industrial needs of a great people.

At the conclusion of Mr. Adams' speech, President Paul said he believed that it would be advisable for the New England Rubber Club to identify with the organization represented by Mr. Adams. The question had been considered by the executive committee, and the president asked that a vote be taken to see what was the general sentiment. It was voted to be the sentiment of those present that the New England Rubber Club should be identified with the Massachusetts State Board of Trade.

* * *

THE discussion of these weighty questions finished, Frank Lincoln, a popular humorist, delighted all present with his clever imitations and impersonations, besides telling side-splitting stories, capping all these by sitting at the piano and giving a burlesque selection from grand opera.

The governor of Massachusetts, the Hon. Curtis Guild, Jr., sent an autograph letter which was read, explaining that an engagement of long standing prevented his being present. Letters were read also from Captain Kilbourne and Weyke, of the United States army, who were the hosts at the Club's summer outing.

The meeting was now declared adjourned, but it was a much later hour before the last members and guests had departed, declaring that it was the best midwinter meeting in the history of the Club.

H. F. C.

THE tennis shoe business of the United States Rubber Co. has increased every year since the company embarked upon this line of goods. It is said to be over 100 per cent larger now than three years ago. The new "Champion" shoe this year, with the high foxing, is a particularly strong and popular shoe. There has been a very great demand among the retailers for the handsome "Champion" banner. The company issued a large edition, assuming it would be enough to satisfy all requests, but the first edition had not been out two weeks before it was found necessary to order a second and larger edition.

TAPPING "CASTILLOA" RUBBER ON HACIENDA DEL CORTE, IN MEXICO.

RUBBER TAPPING ON "DEL CORTE."

IN response to an inquiry regarding the experimental tapping of rubber in progress on the hacienda "Del Corte," owned by the Isthmus Plantation Association of Mexico, Mr. C. G. Cox, the secretary of the company, at Milwaukee, Wisconsin, has written at length to THE INDIA RUBBER WORLD, giving details, which, in part, are summarized below. The plantation manager had not then finished tapping, and complete records had not reached the home office.

Owing to the lack of age of the planted rubber in Mexico, none of the planters there has had much experience in extracting rubber. Hence, the tapping at "Del Corte" has proceeded very cautiously, to avoid all possibility of injuring the trees. Up to this time it has been a question of methods and not of what quantity could be got from a tree in the first tapping.

The only tapping done has been by means of V-shaped incisions —usually three on one side of each tree. They do not believe in machete tapping. Their manager, Cecilio Oest, has had a knife made according to his own ideas, which makes a nice clean cut that heals readily without harming the tree. On the contrary, it is believed that the few trees subjected to their first tapping last year were benefited, becoming larger and apparently better than neighboring trees not tapped.

Mr. Cox states that at "Del Corte" the trees have been tapped less freely than at the same age in Ceylon, and adds: "But we prefer to make haste slowly, feeling that there is a sure future for our rubber trees, and there is no occasion for taking any risks. We have demonstrated the fact that every tree planted is a producer. The latex has flowed freely from every tree we have tapped. We have also demonstrated that trees can be tapped without injury. Another very important matter is that the tapping and coagulating is not going to cost as much as we first thought."

In regard to the yield of rubber per tree, Manager Oest does not think it safe to estimate approximately more than one ounce per tree for the first tapping. He would not risk damaging the trees for the sake of a larger yield. By the next tapping he hopes to get more rubber, and to find less care necessary.

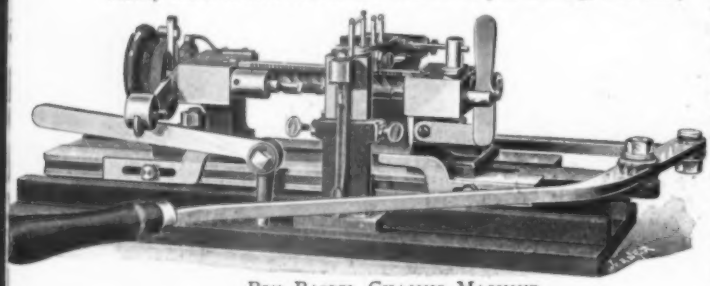
Cups are not used for gathering latex, but a spoon-shaped implement. The idea is to tap many of the trees twice this year. For coagulating, a small box of burned clay is used, which permits the black water contained in the latex to filter through, so that it is only necessary to wash the latex in three or four sets of clean water. Within three or four days after filling the box with latex a well-dried and uniform sheet of rubber is obtained. One man, it is said, can prepare 100 pounds of dry rubber in a day.

An American importing house, asked to report on samples of rubber referred to above, stated (on January 29): "We should say that the value of the rubber represented by your samples is $1.10 per pound, possibly a little more." A leading firm of rubber brokers in London reported about the same time: "No. 1 is fine, clean *Castilloa* sheet and fairly strong; value about 5 shillings [=$1.21⅛] per pound. In quantity this would probably fetch near 5s. 3d. [=$1.27¾] per pound."

The Isthmus Plantation Association of Mexico was organized in 1900 by citizens of Milwaukee, to grow tropical products generally. The company took over an estate on which some rubber and coffee had been planted in 1900, and additional planting has been done every year since. The hacienda "Del Corte" is among the best and most carefully managed rubber planting properties in Mexico.

PEN BARREL CHASING MACHINE.

THE accompanying illustration is that of a machine for chasing the barrels of fountain pens. To the casual observer the matter of ornamenting a pen barrel would signify little, but in reality much is involved in this branch of pen making, and many



PEN BARREL CHASING MACHINE.

kinds as there are different designs in chasing are employed. The machine in question is manufactured by A. Adamson, Akron, Ohio, and has the distinction of being a pioneer in this line of work.

JACKSON BELT LACING MACHINE.

THE belt lacing problem has been very materially simplified by the invention and the recent improvements made on the Jackson Belt Lacing Machine. It is simple in construction and is said to operate at a saving of time and expense. The rolls of this little machine are of hard tool steel and all the parts are interchangeable and can be easily replaced, should necessity require, without the return of the machine to the factory. The wire coil lacing which is used with this machine is durable, makes a perfect hinge, and slips over the pulleys without friction, thereby reducing the vibrations, and consequently the wear, upon the bearings and shafting. Tests of 2½ inch belting have shown that this wire coil has stood a tensile strain of 1,900 pounds without breaking or pulling apart. Another feature to its advantage is that the joining is the same on both sides of the belt, giving an even surface, which is so desirable for smooth running, while the advantage that comes from being able to connect and disconnect a belt at a moment's notice can hardly be overestimated. The cost of lacing a 5 inch belt is but one cent; of a 10 inch belt two cents, and a 6 inch belt can be laced complete in three minutes. The Jackson belt lacing machine is manufactured by the Birdsboro Steel Foundry and Machine Co., Birdsboro, Pennsylvania, and is in use in many of the government plants, as well as in factories all over the country.

BELT LACING MACHINE.

WHAT'S WRONG WITH CEYLON RUBBER?

TO THE EDITOR OF THE INDIA RUBBER WORLD: Is it not time that some one voiced a protest regarding Ceylon rubber? As one who has followed this commodity rather closely, and as one of the earliest users, I would like to impart to your valuable journal my reasons for asking the above question.

When we first received samples of Ceylon rubber we were certainly struck by its beautiful appearance, its cleanliness, and so on. We found its tensile strength quite up to any Pará; for the purpose of making cement it was unequalled, because it had a swell that figured up at least 7 per cent. better than Pará.

But withal we moved slowly; we watched it; and finally satisfied ourselves that here was a rubber made scientifically and by men of brains, and not by natives, who forced us to buy 20 to 40 per cent. of dirt and water. And so we started to use it in fair quantities. The goods looked nice and clean, and we congratulated ourselves.

And now what has happened? Its uniformity has all gone, it comes in all shapes and in all shades, its tensile strength is lower than the Africans, it won't cure, some of it is soft, some of it is hard.

What have our friends in Ceylon been doing? Experimenting? If so, back to *first stages;* they are off the track. We made a large batch of cement with it recently and the swell was not more than 25 per cent. of what it was formerly, and should be. Then again, we find variations in the same case. Why mix it? Placing some weak rubber with the good won't do any good; it only spoils the whole lot.

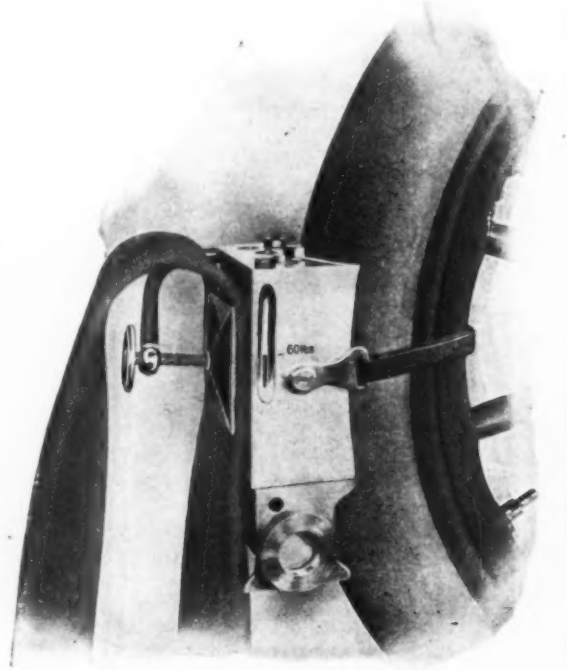
For the sake of the Ceylon rubber industry it is to be hoped that growers will come to their senses and stop fooling before it is too late. The fact that a sample of Ceylon rubber looks good does not prove that it *is* good. We know that to our cost; all users know it. If the growers plead ignorance of what is required by the manufacturers, let them import a practical man from some manufacturing country.

Ceylon rubber should be just as reliable as upriver fine Pará; why isn't it?

A. D. THORNTON.

Montreal, Quebec, February 16, 1907.

THE "EVER READY" VULCANIZER, CAR MODEL.



FOR the use of a special rubber compound for filling tire punctures. Made by the Auto Improvement Co., New York.

THE Kokomo Rubber Co. (Kokomo, Indiana) are out with a new cycle tire—the "New Oxford"—that is making very many friends.

THE RUBBER TIRE FIELD.

GRANT TIRE PATENT SUSTAINED.

STILL another decision has been rendered bearing upon the validity of the solid tire patent issued to A. W. Grant—No. 554,675, of February 18, 1896. THE INDIA RUBBER WORLD has reported (September 1, 1906,—page 403) the decision written by Judge Platt, in the United States circuit court for the southern district of New York, in a suit brought by The Consolidated Rubber Tire Co. and The Rubber Tire Wheel Co., alleging infringement by The Firestone Tire and Rubber Co. The decision by Judge Platt was favorable to the validity of the patent, and the defendants appealed to the United States circuit court of appeals for the second circuit, where, on February 1 last, a decision was handed down, written by Judge Coxe, affirming the Platt decision. The second circuit covers the states of New York, Vermont and Connecticut, and the effect of the decision is to render the Grant patent valid in these states.

Judge Coxe refers to the decision in the circuit court of appeals for the sixth circuit, rendered at Cincinnati in May, 1902, against the validity of the patent. Reference was had in that decision to the capacity of the Grant tire of readjusting itself after yielding to severe lateral strain, without tearing or abrasion of the rubber, or injury of any of the parts. The court at Cincinnati found that the mode of operation which produces this result is not mentioned in the Grant specification, or inherent in the combination of parts in the Grant tire, but depends for its discovery upon the ingenuity of experts. The court at Cincinnati said: "If this tipping capacity had been pointed out, and even this indefinite direction given by the patentee, as to the mode of securing that operation, the patent might possibly be saved."

Judge Coxe finds, however, that this feature is inherent in the patent, and the specification is so clear and explicit that no intelligent mechanic can follow Grant's directions without securing the tipping action, which inheres in no other tire. In view of new facts and features, which have been added to or developed from the records in the earlier cases, Judge Coxe finds no reason to doubt that on the present record the court of appeals of the sixth circuit would reach a result favorable to the patent.

The patent to Latta, No. 341,811, granted May 11, 1886, was cited in the recent litigation as anticipating the invention of Grant, though this patent was not mentioned in the opinion of the court in several important cases hitherto. Judge Coxe analyzes the claims in respect of the Latta tire, and is of the opinion that its disclosures are in no way fatal to the claims of Grant.

TIRES AT THE CHICAGO MOTOR SHOW.

THE seventh annual automobile show, under the auspices of the National Association of Automobile Manufacturers, held in Chicago, on February 2-9, at the Coliseum and the First Regiment armory, was by all accounts the largest and best automobile exhibition yet held in that city. The show was larger than either of the two held in New York earlier in the season. The total number of complete cars and chassis on exhibition was 359, and the thoroughly American character of the show is indicated by the fact that of these only 10 were of foreign make. The tire and accessories department was very complete, representing the leading American makers. The tire exhibits were for the most part the same as were on display at the New York shows, though so rapidly is progress made in this field that some of the companies have had novelties to show that had not previously appeared in any of the motor exhibitions. Displays were made by:

Ajax-Grieb Rubber Co.....Trenton, New Jersey.
Continental Caoutchouc Co.....New York.
The Diamond Rubber Co.....Akron, Ohio.
Dow Tire Co.....New York.
Electric Rubber Manufacturing Co.....Rutherford, New Jersey.
The Firestone Tire and Rubber Co.....Akron, Ohio.
The Fisk Rubber Co.....Chicopee Falls, Massachusetts.
The B. F. Goodrich Co.....Akron, Ohio.
Goodyear Tire and Rubber Co.....Akron, Ohio.
The G & J Tire Co.....Indianapolis, Indiana.
Harburg Tire Co.....New York.
The Hartford Rubber Works Co.....Hartford, Connecticut.
International Rubber Co.....Milltown, New Jersey.
Michelin Tire and Supply Co.....Chicago.
Morgan & Wright.....Detroit, Michigan.
Motz Clincher Tire and Rubber Co.....Akron, Ohio.
Niagara Rubber Co.....Lockport, New York.
Pennsylvania Rubber Co.....Jeannette, Pennsylvania.
Republic Rubber Co.....Youngstown, Ohio.
Swinehart Clincher Tire and Rubber Co.....Akron, Ohio.

In addition to the tire exhibits there were a number of displays of protective devices and other accessories, such as the tire cement of Eugene Arnstein & Co., Chicago; tire cases of the Kimball Tire Case Co., Council Bluffs, Iowa, and tire cases of the Puncture Proof Tire Co., Cleveland, Ohio, and so on.

G & J TIRE COMPANY CHANGES.

MR. HAROLD O. SMITH, identified with the Indianapolis Rubber Co. from 1893, and later president of the G & J Tire Co., until September last, has resigned as a director in the latter company and in the Rubber Goods Manufacturing Co. Mr. Smith is now the head of the Premier Motor Manufacturing Co.

Mr. C. H. Semple has retired from the G & J Tire Co., with which he was connected from its beginning. Latterly he has been secretary of the corporation. He has been elected president of the Automobile Tire Co., a new corporation under the laws of New Jersey.

TIRE TRADE NOTES.

TRACTION Tread Tire and Tube Co. on January 28 filed articles of incorporation under the New York laws with $100,000 capital, to make and deal in rubber tires. Incorporators: J. D. Prince, M. B. Richardson and P. M. Pelletreau, all of New York city.

The incorporation is reported in Massachusetts of the Meteor Tire Co., at Boston, with $10,000 capital. R. S. Warner is president and A. N. Wood, treasurer.

The Healy Leather Tire Co. (No. 88 Gold street, New York) are doing a rushing business repairing tires under the Healy process and guaranteeing all their work.

It was New York to Ormond Beach on *Goodrich* tires, and not Diamond tires, as a report had it, regarding the Oldsmobile endurance run. Incidentally, the tires made a remarkable record, wearing out two sets of chain grips, the tires themselves arriving in perfect condition.

The International Rubber Co. (Milltown, New Jersey) point with pride to their record of but 2 1-10 per cent. of their entire output of tires last year replaced for all causes.

The Diamond Rubber Co. (Akron, Ohio) exhibited at the Chicago automobile show the largest pneumatic tires ever manufactured for use. They were made for a large limousine car built by the Westinghouse company at Pittsburg, and weighing over 6,000 pounds. The tires are made to metric measurements, but the size is approximately 42¼ x 8 inches.

The International Rubber Co. (Milltown, New Jersey) are distributing an attractive picture, "The International Girl," which is a copyrighted reproduction from the original production by Mr. Abbey Altson. They call attention to beauty as the visible expression of goodness, and intend the picture as a reminder of the good qualities of International tires.

The Puncture Proof Tire Co. (American Trust Building, Cleveland, Ohio) are making an all rubber cushion tire, built to fit clincher rims. It is puncture proof because, should it puncture, the air in the interior, not being under pressure, will not leak out, and its resilience comes wholly from the quality of the stock used in its manufacture.

An importation of rubber tire treads at New York was assessed for duty as "hard rubber," against which a protest was made. The board of appraisers sustained the protest, on the ground that the words "hard rubber," in the sense in which used in paragraph 450 of the tariff act, preclude "all manufactures of india-rubber except vulcanized india-rubber known as 'hard rubber.'"

A BOOK ON RUBBER PLANTING.

WHAT I SAW IN THE TROPICS. A RECORD OF VISITS TO Ceylon, the Federated Malay States, Mexico, Nicaragua, Costa Rica, Republic of Panama, Colombia, Jamaica, Hawaii. By Henry C. Pearson, Editor of THE INDIA RUBBER WORLD. New York: The India Rubber Publishing Co. 1906. [Cloth 8vo. Pp. VIII + 288. Price $3.]

TO a greater extent, perhaps, than is true of any other important commodity, the sources of india-rubber are remote from and unfamiliar to those who use it. Whoever explores one of the regions where rubber is native perhaps may not, in a lifetime, meet a fellow-being who has had a like experience. The scenes of an important work now in progress—the creation of new rubber forests, of hundreds and thousands of square miles in area—are measurably nearer to the consuming world, and more accessible to the traveler. Still, they are in the tropics, and in great part lie where one doesn't go except on business.

The author of this book has undertaken, in simple narrative form, to convey a general idea of the principal regions in which man is supplementing the work of nature by starting rubber trees to grow where none grew before. What interested him he has assumed will possess interest for others, particularly those who are concerned with rubber in any way. But, leaving rubber aside, there is that in this volume which makes it an attractive book of travel for the general reader—one which informs without causing any suggestion that such is its purpose.

Mr. Pearson evidently started upon his tour with an open mind, without anything to prove or disprove, and he has written a plain record of what he saw. If he found rubber growing satisfactorily here, or giving less promise in another place, the fact was set down in his notes. Everywhere he has talked with the active workers in the new planting interest, and heard the story of their experiences, whether successful or otherwise, and learned upon what they base their hopes for the future in rubber. This is no planters' manual; it is left to others to discuss the proper distance between trees, or how often to "tap," or how rubber should be dried. It discusses general principles, and is of interest by reason of the suggestions for discussion that incidentally crop out all through the book.

The excellent illustrations, on nearly every page, and all based upon photographs, serve admirably to supplement the descriptive part of the work, besides adding to its attractiveness in appearance. S. C. L.

STANDARD PACKING OF WASTE RUBBER.

A CIRCULAR has been issued containing new regulations for the packing of old rubber boots and shoes, adopted at a meeting of reclaimers at New York, on February 13. The regulations follow:

"1. Deliveries of old rubber boots and shoes must consist entirely of boots and shoes of domestic manufacture; Canadian manufacture to be considered domestic manufacture.

"2. They must be dry and free from dirt.

"3. All cloth top shoes, trimmed or untrimmed, and soles or heels of rubber boots and shoes from which the uppers have been removed, shall not be accepted as a good delivery.

"4. Rubber boots and shoes containing metal, except that applied by the rubber shoe manufacturers, shall not be accepted as a good delivery.

"5. Rubber boots and shoes with leather soles or nails used in attaching them, shall not be a good delivery.

"6. Old rubber boots and shoes, Foreign as well as Domestic, shall be bought and paid for net weight; *i. e.*, no allowance for bagging or covering of any kind shall be made, nor shall the same be returnable to the seller.

"7. All rejections contained in a delivery of old rubber boots and shoes shall be returnable to the seller upon his request, within thirty days from the time notification is received by the seller, and upon payment by him of 1 cent per pound to cover cost of sorting and rebaling.

"8. Foreign old rubber boots and shoes contained in a delivery of Domestic old rubber boots and shoes shall be paid for at a reduction of 2 cents per pound.

"9. All Domestic rubber boots and shoes shall be bought on weight as determined at destination.

"10. Old rubber boots and shoes of Foreign manufacture shall be bought on same conditions as those of Domestic manufacture, c. i. f. port of entry, as determined by weigher's sworn certificate, seller to bear expense of weighing.

"11. The term 'Standard Packing, Circular No. 3' shall apply to all purchases and sales of Domestic and Foreign old rubber boots and shoes, made in accordance with the stipulations of this circular, which supersedes all previous circulars.

"12. The conditions of this circular shall take effect on April 1.

CONSOLIDATION IN CANADA.

THE consolidation of the rubber industry in the Dominion, hitherto reported in these pages, has been further carried out by the inclusion of two other companies in the Canadian Consolidated Rubber Co., Limited. They are the Berlin Rubber Manufacturing Co., Limited, organized in 1899, at Berlin, Ontario, and the Merchants' Rubber Co., Limited, also at Berlin, and dating from 1903. There are thus five factories under the control of the Canadian Consolidated company.

CANADIAN TRADE NOTES.

AT the annual meeting of the Rubber Boot and Shoe Jobbers' Association, in Montreal, favorable reports were read on the affairs of the organization during the year. The membership was shown to embrace 69 firms. It was resolved to establish the offices permanently at Montreal. The officers this year are W. A. Hamilton, president; Joseph Dauost, treasurer; N. L. Martin, secretary.

The building occupied by the Winnipeg branch of the Canadian Rubber Co. of Montreal, Limited, has been enlarged by the addition of two stories, making it a five-story and basement building, 50 x 90 feet.

The agency for Nova Scotia and Prince Edward Island of the Berlin Rubber Manufacturing Co., Limited (Berlin, Ontario), has been taken by Goff & Co., wholesalers of shoes and rubbers, at Charlottestown, P. E. I.

The Canadian Rubber Co. of Montreal, Limited, have opened an additional sales branch in the maritime provinces, at No. 40 Dock street, St. John, New Brunswick, in charge of Mr. Paul R. Hanson, who has been connected with the company's sales in the Quebec division.

WANTS AND INQUIRIES.

[385] WE are in receipt of a request for the names of firms manufacturing rubber coated cloth in plain checks, plaids, etc., in fancy silk and other material. The line desired is for the manufacture of ladies' traveling toilet bags

[386] Addresses of manufacturers of vulcanizers for making rubber stamps are desired by one of our correspondents.

[387] A correspondent wishes to know if the American rubber factories use any rubber and gutta substitutes (except vulcanized oils) not known in Europe.

[388] A gentleman having a very wide acquaintance with all the European manufacturers would like to correspond with some reclaiming house in America with a view to taking an agency.

[389] Names of rubber manufacturers are wanted who are interested in the solvent amyl acetate.

[390] An inquiry reaches us for names of makers of machinery for dealing with the celluloid industry.

THE RUBBER TRADE AT TRENTON.

BY A RESIDENT CORRESPONDENT.

THERE is to be included in Trenton's new Riverside Park a tract of land that for some time was devoted to rubber manufacture. This is a section of the famous old Brookville mill property, on the bank of the Delaware river. Once far beyond the city limits, Trenton has grown so that the old stone mill is now within the municipality. The land just acquired by the city for the new park was bought from Ezra Evans, head of the old Reliance Rubber Co., for $1,923.15. The mill was built by the late James Brook, once one of the leading spirits in Trenton, and whose son was a member of the firm of Brook, Oliphant & Co., founders of the Globe Rubber Co., now part of the United and Globe Rubber Manufacturing Cos. Used for years as a grist mill, the place was acquired a few years ago by the Reliance Rubber Co. and turned into a rubber mill. The Reliance company did not succeed and Ezra Evans bought the stock, and for several months the old mill has stood idle. Mr. Evans has been considering a proposition to re-open the mill and begin the manufacture of druggists' sundries. The matter has been placed before the re-organization committee of the Trenton board of trade.

* * *

VICE-CHANCELLOR EMERY has filed in the court of chancery at Trenton a memorandum denying the application of the Acme Rubber Manufacturing Co. (formerly the Eureka Rubber Manufacturing Co.) for a modification of the final decree of the court restraining the company from using the word "Eureka" in its corporate title or on certain rubber goods manufactured by it. The application was that the decree be so modified that, while continuing the restraint as to the name, it would have permitted the company named to use "Eureka" as a trade-mark on goods not in competition with those manufactured by the Eureka Fire Hose Co.

* * *

SOME local rubber manufacturers are considering the question of establishing in Trenton a mill for the manufacture of cotton duck. This is due to the difficulty which they have experienced in obtaining this necessary raw material in quantities as needed. The Trenton rubber trade at present is unusually brisk, and the general verdict is that the delay in securing raw materials interferes with the quick filling of orders. The high price of duck is another thing that has brought on the agitation. Cotton yarns also being at top notch prices, the proposition is to erect mills for the spinning of yarns and for weaving them into duck. The proposition involves the association in the enterprise of all the principal rubber manufacturers in Trenton and its vicinity. It is reported that as soon as the local men reduce the plan to a practical working basis, certain Philadelphia cotton manufacturers stand ready to provide any additional capital that may be needed. One rubber manufacturer assured THE INDIA RUBBER WORLD correspondent that there was no doubt that a ready market could be found for all the duck that could be made. He thought that the surplus beyond the needs of the Trenton market would find quick sale in other centers.

* * *

MR. CLIFFORD H. OAKLEY, general manager of the Ajax-Grieb Rubber Co., of Trenton, was married on the evening of February 7 to Miss Elizabeth Moon, daughter of Mr. and Mrs. Daniel Moon, also of Trenton. The marriage was according to the custom of the Friends. After an extended bridal tour, Mr. and Mrs. Oakley will reside at No. 375 Hamilton avenue.

Quartermaster General C. Edward Murray, City Treasurer W. J. B. Stokes, and Mr. John S. Broughton, all prominent Trenton rubber manufacturers, gave material aid to the ball given in the Second Regiment armory, on February 7, for the benefit of the fund for the Mercer County Soldiers and Sailors' Monument. About 2,500 persons were present. Governor Edward C. Stokes and a number of state officials and other notables were in attendance.

It is announced that representatives of the Woven Steel Hose and Rubber Co. have purchased a lot of ground on Prospect street, near Pennington avenue, on which they contemplate the erection of a new building, probably early in the coming summer. Though the concern is comparatively new among the Trenton rubber companies, it has had a rapid growth, and the present quarters have become too small for the expanding business. The leading product of the company is rubber hose reinforced by a woven steel armor of a special pattern.

Mr. Harry E. Evans, general manager of the Consolidated Rubber Co., is convalescing after an attack of typhoid fever.

The William H. Skirm Rubber Manufacturing Co., of Trenton, was incorporated in the office of the secretary of state on February 14. It has an authorized capital stock of $300,000 and the incorporators are William H. Skirm, William C. Mayne, and John H. Kafes. The charter states that the company will manufacture and deal in all kinds of rubber goods. It is understood that the intention is to erect a new rubber mill here. It is said that the concern will manufacture rubber insulation for copper wire and insulate the wire. United States Senator William A. Clark is said to be interested.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

AT a recent meeting of the directors of the Diamond Rubber Co. it was decided to increase the capitalization of the company from $3,000,000 to $5,000,000. The company's first move will be to increase its capitalization $500,000, but the rest of the $2,000,000 will be added within a short time afterward. The rapidity with which the Diamond's tire business has expanded during the past year or two has necessitated the increase. It is announced at the offices here that one, or possibly two, large buildings will be erected in the spring. Mr. W. B. Miller, secretary of the company, states that the additional stock is already being sold.

* * *

THE rubber industry at Akron is deeply interested in a decision rendered during the month at New York, sustaining the validity of the A. W. Grant patent on solid rubber tires. [This decision is reported on another page of this issue.] It is estimated here that Akron factories produce at least half of the 10,000,000 pounds of solid tire stock made yearly under the Grant patent. If the attempt of the Consolidated Tire Co. to collect royalties proves successful, it will mean a heavy drain upon the Akron companies. These are protected, however, in their trade in four states embraced in the sixth judicial circuit of the United States, under a decision rendered at Cincinnati in 1902. The Firestone Tire and Rubber Co., the unsuccessful litigants in the case just decided at New York, have not determined whether to carry the matter to the United States Supreme Court.

* * *

AKRON is to have still another rubber factory. The Star Rubber Co. has been incorporated here, with $100,000 capital. The incorporators are Jefferson D. Slater, John W. Miller, Homer A. Hine, William Slater, and Fred M. Hall. The company has already purchased 3½ acres of land, and a factory will be erected in the spring. Seamless druggists' sundries will be the only articles manufactured at the start, and about 100 men will be employed. Mr. J. D. Slater, who will be general manager of the plant, has been connected with the Faultless Rubber Co. for many years.

The Gibson-Alling Co., manufacturers of rubber stamps, seals, stencils, etc., has been incorporated here, with $25,000 capital, by G. L. Gibson, A. L. Alling, C. Gibson, George H. Alling, and M. Olin.

News of the American Rubber Trade.

UNITED STATES RUBBER COMPANY MERGER.

AT a meeting of the directors of the United States Rubber Co., in New York, on February 7, a committee was appointed to deal with the question of liquidating as a separate corporation the Rubber Goods Manufacturing Co., of which more than 90 per cent of the shares have been acquired by the United States company under the merger plan of May 27, 1905. The ultimate liquidation of the Rubber Goods Manufacturing Co. has been intended ever since it came under the control of the United States Rubber Co., but the accomplishment of this purpose has been postponed from time to time to afford to the holders of any outstanding common stock the most ample opportunity to avail of the offer heretofore made by the United States company. The object in bringing about a more complete merger of the two companies is to institute economies in the operating and selling departments. Owing to the difference in the character of the products of the two corporations, distinct selling agencies have existed hitherto, and it is believed that by their consolidation an important saving may be accomplished. The directors of the Rubber Goods Manufacturing Co. have also held meetings bearing upon the same subject. The Rubber Goods Manufacturing Co., incorporated in 1899, is a combination of mechanical goods and rubber tire factories, capitalized at $25,000,000.

NEW FACTORY AT DETROIT IN OPERATION.

THE Detroit Insulated Wire Co. (Detroit, Michigan), the incorporation of which was reported in THE INDIA RUBBER WORLD, November 1, 1906 (page 58), have built and equipped a thoroughly modern plant for the manufacture of rubber-covered wire. Those departments of the factory in which insulation is applied to small sizes of conductors are completed and in operation. The other departments are being placed in readiness as rapidly as the present congested condition among manufacturers of machinery will permit. Mr. J. H. Hunter, vice-president of the company, is in charge of the manufacturing operations, and Mr. Arthur Hartwell, the secretary-treasurer, of the department of sales.

"FRICTION PLUG" PATENTS AGAIN SUSTAINED.

THE Foster Rubber Co. (Boston) and the Walpole Rubber Co. (Walpole, Mass.) have consolidated their rubber heel and sole business. This will eliminate all litigation between the two companies over the patents on "friction plug" non-slipping heels and other specialties. Hereafter the goods covered by the Foster patents will be made at the Walpole Rubber Works, which have been enlarged for the purpose, while the entire selling of the goods will be done by the Foster Rubber Co. The salesmen employed formerly by the Walpole company have been taken over by the Foster Rubber Co. Four brands of non-slip heels will now be made under the Foster patents—Foster, "Catspaw" (made formerly by the Walpole company), "Tredair" (made formerly by the Tredair Rubber Co.), and "Diamond." The combined output of "friction plug" heels is now 8,000 to 10,000 pairs a day. Mr. S. H. C. Miner, of the Canadian rubber trade, is one of the largest shareholders in the Foster Rubber Co.

REVERE RUBBER CO. EMPLOYES' "FIFTH ANNUAL."

THE fifth annual banquet of the clerks and salesmen of the Revere Rubber Co. (Boston), at the Hotel Brunswick, on the evening of January 25, as usual, was well attended, and proved a thoroughly enjoyable affair. There were 45 present, exclusive of entertainers. An appropriate tribute was paid to the memory of the late George C. Shirts, a member of the association. G. Arthur Gray was toastmaster, and was the recipient of a silver loving cup from his associates in the Boston offices. Toasts were responded to as follows: "Home Office," by C. H. S. Wetmore; "Boston Store," by E. D. Lombard; "Factory," by W. H. Tucker. Mr. Philmer A. Sample gave an illustrated talk on Porto Rico.

To the list of souvenirs of these interesting annual events is added this year "The Chelsea Farmers' Almanac," by "G. R. Thurgoray," a strikingly rich compendium of wit.

STOUGHTON GOLF BALL FACTORY SOLD.

THE golf ball factory of the Stoughton Rubber Co. (Stoughton, Massachusetts) has been purchased by A. G. Spalding & Brothers (New York). The factory was erected several years ago, was well equipped, and is in good condition. The introduction of the rubber-cored golf ball, however, interfered with the sale of its products, and the Stoughton company failing to secure a license under the rubber-cored ball patents, whereas the Spalding company do hold such license, these facts led to the transfer of the factory as stated. Meanwhile the Stoughton Rubber Co. are reported to have done a good business in selling to the trade a covering compound for golf balls, but the growth of the other branches of their production has made it seem desirable to dispose of their golf ball trade altogether.

TWO NEW CROCKER RUBBER SHOES.

THE Salem Rubber Co. has been incorporated under the laws of Massachusetts to conduct a general rubber store at Salem. George I. Crocker, of Brockton, is president; Isaac Crocker, treasurer, and Russell H. Weeks, clerk. The Worcester Rubber Co., at Worcester, Massachusetts, has also been incorporated with Albert H. Bloss, president; Isaac Crocker, treasurer, and Fred A. Jewell, clerk. The Crocker chain of wholesale and retail rubber stores in Massachusetts and Rhode Island now numbers six.

MONOPOLY IN DISC SOUND RECORDS.

THE American Graphophone Co. (Bridgeport, Connecticut) have won recently three cases in the United States court, which give them a monopoly of the manufacture and sale of disc sound records in the United States. One suit was brought by the Victor Talking Machine Co., as licensees under the Berliner patent, for hard rubber records. It was their contention that while disc records to-day are not made of hard rubber, they are made of a substance so nearly resembling it as to be fairly included in the scope of the Berliner patent. The court held that the patent was limited strictly to hard rubber, and therefore did not apply to the product of the American Graphophone Co.

THE PARA IMPROVEMENT COMPANY.

THE president of Brazil has signed a decree granting the right to operate in that republic of the company Port of Pará, incorporated in September last under the laws of Maine (United States), with $17,500,000 capital authorized, to improve harbor conditions at Pará. [See THE INDIA RUBBER WORLD, January 1, 1907—page 130.] The Brazilian government guarantees the undertaking by levying a special import tax of 2 per cent. on imports at Pará, or so much of the proceeds as may be needed, until the company's income equals 6 per cent. on its capital shares. The company's bonds have been placed in various European markets. The Port of Pará has made contracts with the firm of S. Pearson & Sons, Limited, for the work below water, including dredging, and with H. Schneider et Cie. (Creusot, France) for the work above water and material. The concession on which this whole undertaking is based is that granted by Brazil in 1905 to Percival Farquhar, an engineer, whose offices, No. 80 Broadway, New York, are at present the headquarters of Port of Pará. Mr. Farquhar is president of the company.

TRADE NEWS NOTES.

THE capital of the Revere Rubber Co. (Boston) has been increased from $1,500,000 to $2,000,000.

The Binghamton Shoe and Rubber Co., at Binghamton, New York, have filed articles of incorporation at Albany, with $50,000 capital, to do a jobbing business in footwear. The directors are T. B. Crary, John J. Burns, A. J. Parsons and J. L. Hoeschele. This is a consolidation of two jobbing firms in Binghamton.

The Housatonic Rubber Works, Inc., reclaimers of uncured rubber scraps, at Bridgeport, Connecticut, have been sending to their friends in the trade some attractive souvenirs, in the shape of exceedingly handsome leather cigar cases.

The annual report of the American Can Co. shows gross earnings for 1906 of $2,534,367. They were obliged to deduct for fire losses in San Francisco and elsewhere, so that the net profit is only $2,113,421. Dividends were paid amounting to $515,416. New factories are in course of construction at New Orleans and Savannah, and another has been authorized at New Castle, Pa.

The Woonsocket Rubber Co. have granted to the city of Woonsocket sewer rights on the premises of the "Alice" mill, over a tract 15 feet in width. The grant is twice as much as the city asked for, and has been made with a view to encouraging the establishment on adjoining premises of a new factory in the woolen industry, which would contribute to the prosperity of the city.

The directors of the Rubber Goods Manufacturing Co. on February 2 declared the thirty-second regular quarterly dividend of 1¾ per cent. on the preferred shares, out of earnings, payable March 15 to holders of record March 8.

The employes of the New York Rubber Co. received double pay during the week ending February 1—an annual custom of the company which is much appreciated by those in its employ.

The trustees of the first mortgage 6 per cent. bonds of The Mechanical Rubber Co. announced recently their readiness to expend the sum of $75,237.97 in the purchase of bonds of that issue, if offered at an advantageous rate.

TRADE NEWS NOTES.

THE Continental Talc Co., of New York city, have filed articles of incorporation under the laws of New York with $200,000 capital. The directors are T. W. Tone, W. E. Condit and Edwin Binney.

Mr. C. E. Nichols, who has been connected with the shoe trade for some ten years, has been engaged to represent, in New York city, the Amsterdam Rubber Co., distributors of Banigan rubbers.

The Independent Rubber Co. (Fort Wayne, Indiana), wholesalers of the Hood Rubber Co.'s rubber footwear, completed their fifth year during the past month. Their business has grown until it occupies the whole of a seven-story fireproof building, at No. 129 East Columbia street.

The Mishawaka Woolen Manufacturing Co. gave a banquet at the Oliver Hotel, South Bend, Indiana, on the evening of January 31, to the members of the firm of Dunham Brothers (Brattleboro, Vermont), and their eighteen New England salesmen.

Dunham Brothers (Brattleboro, Vermont), in addition to the "Ball brand" of rubber footwear, made at Mishawaka, and for which they are New England agents, have introduced two new brands for which they have the exclusive sale—"Victor" (first quality) and "Reliance" (second quality).

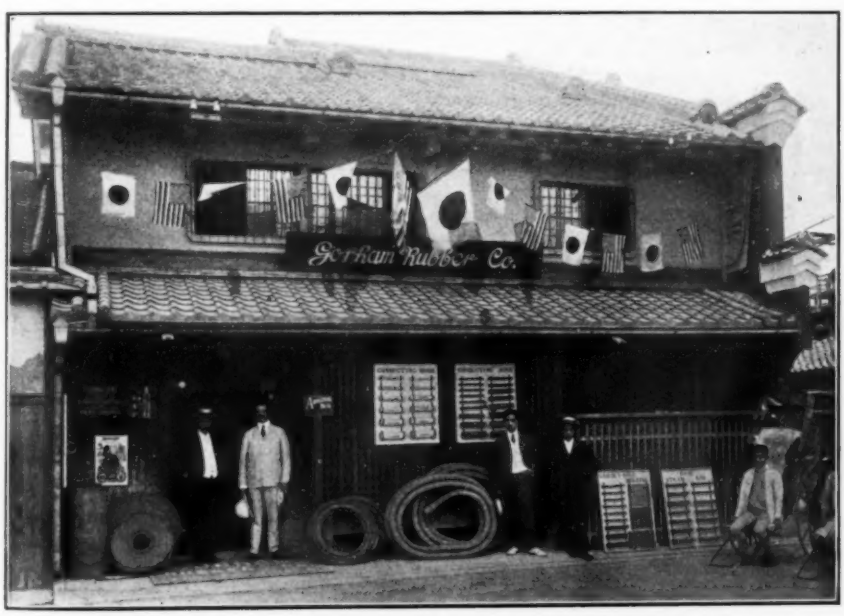
The new factory of The B. & R. Rubber Co. (North Brookfield, Massachusetts) was mentioned in the last INDIA RUBBER WORLD as having begun making up samples. It is learned that within a few hours after the first sample goods were put out, orders were received for $50,000 worth, mainly of rubber heels. An official of the company states: "Business has been coming our way since the first day, and our biggest problem at the time is to take care of the business we have accepted."

The capital of the Standard Underground Cable Co. (Pittsburgh, Pennsylvania) has been increased recently from $2,000,000 to $3,000,000. THE INDIA RUBBER WORLD is advised by an official of the company: "We have not published any annual report for the year 1906, in view of the fact that our stockholders are all local people, and were fully advised as to the conditions of the company at the annual stockholders' meeting."

Mr. William H. Gilbert, who has been employed by the Joseph Banigan Rubber Co. (Providence, Rhode Island) for several years, has been appointed assistant general manager. Such an appointment has become desirable for the reason that Mr. Walter S. Ballou, general manager of the company, is also a member of the board of directors and of the executive committee of the United States Rubber Co., and obliged to be in New York a good deal.

It is stated that the Consolidated Rubber Tire Co. (New York) will pay this year 3 per cent. on their income bonds, as against 2 per cent. last year. The payment will be due on April 1.

The Milford Rubber Cement Co. (Milford, New Hampshire) were mentioned last month as having begun operations. George P. Morse is president, P. H. Farley treasurer, and J. E. Morse secretary. The Messrs. Morse are owners of the Morse Blacking Co., of Boston.



JAPANESE HEADQUARTERS OF AN AMERICAN RUBBER FIRM.

[Branch house, at Osaka, Japan, of the Gorham Rubber Co., of San Francisco, California. The location is 3, Nishinagahori Kita-Gochome, Osaka, and the manager Mr. S. Sawatari.]

The Palmer tire—American, Goodrich make—is an increasing factor on the bicycle this year.

TRADE NEWS NOTES.

IT IS stated that the Glenark Knitting Co. (Woonsocket, Rhode Island) will not start their Glenark mill before a year, and that they prefer to sell it.

The Omaha Rubber Co. (Omaha, Nebraska) are reported to be planning a new building, larger than that now occupied by them, and to cost $60,000 or $70,000. This corporation some time ago acquired the business of E. H. Sprague & Co., jobbers of rubber footwear and waterproof clothing, founded in 1897, Mr. Sprague remaining in charge. It is now proposed to take on a general line of rubber goods.

Mr. Frank K. Hadley, connected formerly with Hadley Cement Co., has become factory superintendent of the St. Louis Rubber Cement Co.

Sherwood B. Foote, receiver of the Falcon Rubber Co. (New Haven, Connecticut) recently applied to the court for permission to pay a dividend of 40 cents on the dollar—the first payment in respect of liabilities amounting to about $18,000.

The latest "rubber trust" rumor comes from Lynn, Massachusetts, and relates to a proposed combination of rubber cement factories, Standard Oil Co. interests being concerned.

The "Marvel" whirling spray syringe is reported to have been awarded the gold medal offered for goods of its class by the Société d'Hygiene de France, at Paris.

A fire occurred on Sunday, February 10, in the basement of the rubber goods store of John W. Buckley, No. 69 Warren street, New York. The damage to property was not great, but several firemen were temporarily overcome by fumes from the burning rubber.

Eastern Talc Co. (Boston) are making two grades of talc from their mines at East Granville, Vermont. One is sold to the bulk of the rubber trade, as suitable for the majority of mechanical goods. The other, bolted through 200 mesh cloth, is suitable for the finer work, such as druggists' sundries. Each particle of this will pass through an aperture 1-40,000 square inch in cross section.

The main building of the new plant which Jenkins Brothers (New York), valve manufacturers, are erecting in Montreal, will be 200 x 50 feet. There will also be a foundry 150 x 64 feet, and an engine and boiler house, 60 x 45. Later they intend erecting another foundry, 100 x 60 feet.

The Sears, Roebuck Co., a mail order house whose dealings in rubber goods alone would equal the business of a good-sized store, report total sales for January of $3,278,435, against $2,742,236 for the same month last year. The net profit for the second half of 1906 was $1,837,237—divided between dividends, $349,982, and surplus, $1,487,255. The cost of advertising for the six months was $1,544,763.

Angie W. Pierce, who resigned as superintendent of the druggists' sundries department of the National India Rubber Co. (Bristol, Rhode Island) in December, 1905, has returned to that position. Previous to the date mentioned he had been continuously in the employ of the company since September 6, 1865.

It is stated that approximately 75 per cent. of the world's supply of pencil graphite is furnished by the mines of the United States Graphite Co. in the Mexican state of Sonora.

The various branch managers and department heads of the H. W. Johns-Manville Co. held their annual convention at the headquarters of the company, No. 100 William street, New York, during the last days of January, concluding with a banquet at the Waldorf-Astoria on the evening of February 1. The company have factories in four cities and branch offices and warehouses in fifteen.

The new United States pure food laws are now attacking an industry that is somewhat akin to the rubber business. According to report manufacturers of chewing gum will hereafter be barred from adding talc to their product, as health experts hold that it is not nutritious.

TRADE NEWS NOTES.

THE Globe Mills Rubber Co. (Lawrence, Massachusetts) plan this year to more than double their output of 1906. The company are busy now getting out footwear samples for the coming season's trade.

The new "Revelation" comb made by the Harburg Rubber Comb Co., being hollow backed, is lighter in weight than other combs, possessing the distinct advantage that, like ivory soap, "it floats."

Mr. Myles Percy Fillingham, who for twelve years was with the Farrel Foundry and Machine Co., has connected himself with the Aiton Machine Co. of New York and Harrison, N. J., having taken charge of the rubber mill machinery department.

A new rubber factory is in prospect for San Francisco, which, it is said, will be devoted to the manufacture of mechanical rubber goods. It will be under the control of one of the most important jobbing houses on the Pacific coast, and will cater especially to Chinese, Japanese, Mexican, and Australian trade.

The Wellman Sole Cutting Machine Co. (Medford, Massachusetts) have adopted the shorter name, Wellman Company, and hereafter all correspondence should be addressed accordingly.

Mr. Frederick T. Ryder, Jr., has resigned a position in the offices of the Boston Rubber Shoe Co., to take charge of the rubber department of the Charles D. Griffith Shoe Co. (Denver, Colorado), makers of leather footwear and large handlers of the Boston Rubber Shoe Co.'s products.

The Automobile and Power Boat Show, to be held in Boston, in the Mechanics' and Horticultural buildings, on March 9-16, is expected to be larger than last year, while arrangements are under way for making it, in the matter of appearance, the most attractive automobile show in the country.

The rubber exporting firm at Para and Manaos, with whom Poel & Arnold (New York) are affiliated, exported last year 21,600,000 pounds of the total of 76,600,000 pounds going out of the Amazon to the United States and Europe.

Officials of The B. F. Goodrich Co. announce that work upon their proposed new office building will be started as soon as the weather will permit, and that the structure will be one of the finest in the city. When the new building is completed, the different offices, which are at present distributed about the factory and are known as department offices, will be gathered under the same roof with the others.

Peter S. Sherbondy, who was an employé of The B. F. Goodrich Co. for 32 years, and who had been on the company's list of pensioners for several years, died recently. Mr. Sherbondy was 75 years old, and had made Akron his home all his life.

The certificate-holders of the Monte Cristo Rubber Plantation Co. (Greeley, Colorado) have been informed that the next inspection, in their behalf, of the company's property at Palenque, state of Chiapas, Mexico, will be made by George P. Avery and S. A. Rice. Forty acres have been planted to rubber, and 300 acres additional cleared.

A party of visitors to the plantation of the Batavia Co., Inc. (Milwaukee, Wisconsin), in the state of Oaxaca, Mexico, left for that place about the middle of February. It included Mr. Ceylon E. Lyman, president of the company, and a score of others from Minneapolis, St. Paul, Chicago, Milwaukee and Los Angeles. The party expected to witness the first tapping of a few hundred of the six-year-old rubber trees on the plantation, and if results warrant several thousand trees of this age will be tapped lightly later in the year.

A petition in bankruptcy has been filed against the Munger Vehicle Tire Co. (New York), by three creditors, the principal one being Louis de F. Munger, a former director, and in whose favor the company, in November last, confessed judgment in the sum of $11,881, in his suit for breach of contract for services. The company formerly manufactured tires, but has not been active for several years.

ANTWERP AND CONGO RUBBER.

IN their annual review of the Antwerp market for 1906 Messrs. Grisar & Co., the official brokers, devote their attention mainly to the efforts now making to prevent the decline of rubber production in the Congo Free State by forming plantations. First may be introduced a table of the arrivals of rubber at Antwerp during the last 10 calendar years:

YEAR.		Congo State.	Other Sources.	Total.
1897	*Kilos*	1,557,861	121,293	1,679,154
1898	"	1,734,305	280,286	2,014,591
1899	"	2,992,414	410,416	3,402,880
1900	"	4,902,003	796,032	5,698,035
1901	"	5,417,456	431,746	5,849,202
1902	"	4,992,954	411,031	5,403,985
1903	"	5,180,401	546,082	5,726,483
1904	"	4,723,618	1,040,238	5,765,856
1905	"	4,442,607	1,271,121	5,713,728
1906	"	4,593,759	1,178,303	5,772,062

Messrs. Grisar & Co. say:

"As stated in our last review, the measures taken by the Congo Free State to prevent abuses and the destruction of the State forests have tended to put the rubber crop on a steady and normal basis. On the other hand, the imports from the French Congo show a deficit, owing to the new market at Havre. Congo imports are of excellent quality, and much sought by buyers, with rising prices. Among the different sorts, we especially mention those from the plantations of Asia, which come regularly and fetch the highest prices known in rubber history.

"Rubber planting goes on steadily in the Congo basin, and more systematically than in the past. In the region under review, 2,500,000 trees and lianas were set out in 1905, which brings the total to 15,000,000 plants set out in accordance with the law. To arrive at the actual number now standing we may deduct 2,000,000 plants for losses, due to ignorance on the part of the planters' agents, or to negligence, or to the abandonment of plantations formed under bad conditions.

"Notwithstanding the planting done by the plantation companies as required by law, the State has engaged in rubber culture wherever it promises good results. These State plantations now number some 8,500,000 *lianas* and 750,000 *Funtumia elastica* trees. The *Hevea* plantations, though much less important, deserve mention here; and the results obtained from this source have all along been satisfying. The State requires the propagation of this species where the soil and climate seem most favorable. For this purpose 20,000 *Hevea* seeds have been sent to the Congo this year. About 95 per cent of these arrived in good condition and were distributed among the principal centers on the lower Congo and in the Ubangi and Lualaba Kasai districts Besides these, the older *Heveas* at Boma, Colquilhatville, and New Antwerp will yield a good crop of seeds this year. Studies carried on for some years enable us to classify the rubber trees and creepers indigenous to the Congo according to their relative importance, from the standpoint of the care which they demand, their vigor, and their productivity. The classification is:

"*Landolphia Klainii.*

"The 'Bendawe' or 'Lemoze' liane, from Urbangi.

"*Landolphia Owariensis, L. Droogueansiana,* and *L. Gentili,* and *Clitandra Arnoldiana.*

"The indications are that well managed plantations will in the future replace the wild growths as rubber sources, both because of their better yield and easier exploitation, while that of the forest becomes more difficult. We heartily approve of the efforts of the Congo Free State to foster a desire for better methods of culture, which must have a good effect upon the morality of the natives, as well as rendering their work easier.

"It might be well here to speak of the real progress made in the Far East, where the planting of *Hevea Brasiliensis,* begun some ten years ago, is now giving excellent results. As proof may be cited the statistics of imports from Ceylon and the Federated Malay States, in English pounds:

		1902.	1903.	1904.	1905.
Ceylon	*Pounds*	15,592	41,798	77,212	168,547
Malay States	"	1,000	13,000	207,500	

"The regular and constantly increasing yield from these plantations can not fail to play an important part in the rubber trade."

FIGGIS'S ANNUAL REVIEW.

THE annual review of the crude rubber trade by S. Figgis & Co. (London) is devoted principally to Plantation rubber, the increase in supply of which they mention as having been beyond expectations. Their estimate of actual shipments is:

From Ceylon	70 tons in 1905;	160 tons in 1906
From Malay States	75 tons in 1905;	350 tons in 1906
Total	145	510

The preparation and quality, as a whole, have been excellent and suitable to manufacturers, who have paid high prices for fine lots of nice color and transparency when clean and resilient. If "block" rubber is to be shipped, the Messrs. Figgis suggest blocks not exceeding 3 inches in thickness and 12 inches long, not more than 10 pounds in weight and packed in cases of 1 cwt.

As was anticipated, the extra price of plantation fine compared with Pará fine was diminished with the larger supply of the former, and may be expected to more nearly approach the fine Pará price with a larger output from the plantations. So far, plantation rubber has not gone into consumption for the larger uses of rubber, manufacturers having refused to pay a premium for it except for special purposes, mainly solution. No doubt, when the supply of plantation increases, manufacturers will apply it to larger uses. The area planted to rubber or planting, in the Far East, is estimated as follows, including rubber mixed with tea and other crops:

Ceylon	100,000 acres	Java	20,000 acres
Malay States	90,000 "		
Borneo	12,000 "	Total	222,000 acres

The world's production of rubber for 1906 is estimated at nearly 65,000 tons, and the consumption nearly as great. The supply from the Amazon showed no reduction. The output of rubber in other sections of Brazil, especially "maniçoba," has been stimulated by companies working with large capital. The year shows a net decline of 2 pence on fine Pará goods, but a penny advance on negroheads, owing to scarcity. On caucho ball there has been a rise of 5d. per pound, following an advance of 6d. the year before.

INDURATED FIBER INSULATOR.

RECENTLY advantage has been taken of the insulating properties of indurated fiber to apply it to insulation uses. It is stated that ⅛ inch thickness of the material will withstand 23,000 volts without puncture or breakdown, and ⅜ inch 46,000 volts. Indurated fiber is now used as a covering for wire, particularly in exposed places. It is also employed for battery jars, transformer jars and covers, and the Western Union Telegraph Co. are using it for resonators. An important application is in third-rail work. A considerable portion of the tracks of the New York Central Railroad, in the electric zone of that road near New York City, is being equipped with this material. Indurated fiber is likewise used for protecting the third rails on the elevated and subway roads in New York. The fiber can be molded so as to fit closely any form of rail, and it serves to protect rails against corrosion and ammonia salts from the streets, as well as against accidental contact.

TRADE NEWS NOTES.

A VERY attractive book with the title "The Horse," containing suggestions for the proper care of the horse in and out of the stable, is published by the Joseph Dixon Crucible Co. (Jersey City, New Jersey). This book will appeal to all who own or handle horses, and will be sent free to those requesting a copy.

Goodyear's India Rubber Selling Co. (New York) have filed articles of incorporation under the New York laws, to deal in rubber goods, with $25,000 capital stated. Incorporators: C. Van Vliet, Edward R. Rice, Homer E. Sawyer, Samuel Norris, and John D. Carberry.

The United States treasury department notifies a drawback on dress shields and infants' specialties manufactured by the Canfield Rubber Co. (Bridgeport, Connecticut), with the use of imported binding, beading, tape, lace, and Japanese silk, equal to the duties paid on the imported materials, less 1 per cent.

The Beaver Rubber Clothing Co., Limited, of No. 425 St. James street, Montreal, inform THE INDIA RUBBER WORLD that they were only slightly damaged by the fire of January 3. They will not have to change their location, and orders have been filled as usual. Their travelers were starting out on January 14.

The Motor Car Equipment Co. (No. 55 Warren street, New York) have taken the agency for the "Pirelli" high and low tension rubber cable, suited for automobile construction, and made by Pirelli & Co., of Milan, Italy.

On March 1 the Raw Products Co., who have been at No. 41 Park row, New York, will move into larger offices at Nos. 121-123 Front street.

It is understood that the Milwaukee Rubber Works Co. (Cudahy, Wisconsin), for some time past in the hands of receivers, is about to be reorganized, with $1,000,000 capital. It is intended to double the capacity of the factory, and add a reclaiming plant.

The Reinforced Hard Rubber Co. (Jersey City, New Jersey) is in the hands of receivers, and the factory has not been in operation for some time past. Plans are being projected, however, for the resumption of work. THE INDIA RUBBER WORLD is advised that the plant, for the present at least, will not be removed to Baltimore, as has been reported in some of the newspapers.

TRADE NEWS NOTES.

THE directors of the Manufactured Rubber Co. (Philadelphia) have declared a dividend of 4 per cent. on the preferred stock, payable on March 1. The last previous disbursement was 2 per cent., on October 10 last.

Mr. Albert S. Le Vine has resigned from the sales department of the Ajax-Grieb Rubber Co. (Trenton, New Jersey), with the purpose, it is understood, of returning to the automobile trade.

Golberg & Rathburn, dealers in new and old metals and rubber, 289-293 Commercial street (Boston), have met the needs of a growing business by taking the building adjoining their present location, thus making their new address Nos. 285-293 Commercial street.

The receivers of the Electric Rubber Manufacturing Co. (Rutherford, New Jersey) reported to the New Jersey chancery court on February 18 having received three separate offers for the plant, but neither was approved by the court. It was thereupon ordered that the plant be offered for sale on May 3, unless a satisfactory offer should sooner be made. Meanwhile, proceedings in bankruptcy have been instituted in the United States court.

San Francisco held her first big automobile show, in the Coliseum building, during the week beginning February 18.

Mr. Richard H. Pease, president of the Goodyear Rubber Co. (San Francisco) will leave for his regular Eastern buying trip about the middle of March. He was in New York last year at the date of the San Francisco fire.

Monsieur Edouard Michelin, one of the proprietors of Michelin et Cie. (Clermont-Ferraud, France) was a visitor to the United States during the past month.

A CORRECTION.

THE statement in a report on the tires at the Madison Square Garden automobile show, in the last INDIA RUBBER WORLD, that "the International Rubber Co. are making Dunlops," got into print through an inadvertence. The only Dunlop tires made in the United States are made under patents owned by the Hartford Rubber Works Co., either by the Hartford company or affiliated concerns.

Review of the Crude Rubber Market.

DURING the latter half of February the New York market showed a decrease in activity, due in part at least to a feeling that the Antwerp sale on the 22d, embracing about 598 tons, would result in lower prices. The number of lots offered on that date was unusually large, involving a great number of grades, and in the absence of full details the trade is undecided whether the average paid shows a decline or an advance as compared with January prices. In any event the change was slight, and consumers of other grades at once entered the market more actively, without easier prices as an inducement.

Prices for Pará sorts are slightly lower, however, than at the beginning of February, but this is the season of the largest arrivals of the year. Up to date, however, total arrivals for the Pará season have been smaller than during recent years. Advices to February 18 show total arrivals for the season (including caucho) of 21,310 tons. Arrivals last year to the end of February were 24,320 tons; in 1904-5, they were 22,210 tons, and in 1903-4, 21,510 tons. It is generally believed, however, that there are important accumulations upriver, delayed in shipment.

Following is a statement of prices of Pará grades, one year ago, one month ago, and on February 26—this date:

	PARA.		
	Feb. 1. '06.	Feb. 1, '07.	Feb. 26.
Islands, fine, new	125 @126	118 @119	118 @119
Islands, fine, old	none here	none here	none here
Upriver, fine, new	128 @129	123 @124	122 @123
Upriver, fine, old	none here	127 @128	126 @127

	PARA.		
	Feb. 1. '06.	Feb. 1, '07.	Feb. 26.
Islands, coarse, new	75 @ 76	72 @ 72½	71 @ 72
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	94 @ 95	97½@ 98	97 @ 98
Upriver, coarse, old	none here	none here	none here
Caucho (Peruvian) sheet	72½@ 73½	78 @ 79	77 @ 78
Caucho (Peruvian) ball	79½@ 80	96 @ 97	95 @ 96
Ceylon (Plantation) fine sheet	———	137 @138	137 @138
AFRICAN.		**CENTRALS.**	
Sierra Leone, 1st quality	107 @108	Esmeralda, sausage	93@94
Massai, red	107 @108	Guayaquil, strip	75@76
Benguella	77 @ 78	Nicaragua, scrap	92@93
Cameroon ball	78 @ 79	Panama, slab	70@71
Accra flake	22 @ 23	Mexican, slab	71@72
Lopori ball, prime	115 @116	Mexican, slab	71@72
Lopori, strip, prime	104 @105	Mangabeira, sheet	65@70
Madagascar, pinky	89 @ 90	Guayule	@48
Ikelemba	116 @117	**EAST INDIAN.**	
Soudan niggers	92 @ 93	Assam	94@95
		Borneo	50@57

Late Para cables quote:

	Per Kilo		Per Kilo
Islands, fine	5$600	Upriver, fine	6$600
Islands, coarse	———	Upriver, coarse	4$000

Exchange, 15 9/16*d.*

Last Manaos advices:

Upriver, fine	6$700	Upriver, coarse	4$200

Exchange, 15 17/32*d.*

Statistics of Para Rubber (Excluding Caucho),

NEW YORK.

	Fine and Medium.	Coarse.		Total. 1907.	Total. 1906.	Total. 1905.
Stocks, January 1.....*Tons*	173	3	=	176	122	69
Arrivals, January.....	1034	556	=	1590	1804	2073
Aggregating.....	1207	559	=	1766	1926	2142
Deliveries, January.....	1083	555	=	1638	1702	1985
Stocks, January 31.....	124	4	=	128	224	157

	PARA. 1907.	1906.	1905.	ENGLAND. 1907.	1906.	1905.
Stocks, January 1..*Tons*	—	585	200	365	570	175
Arrivals, January.....	3330	4720	3775	680	565	905
Aggregating.....	3330	5305	3975	1045	1135	1080
Deliveries, January.....	2365	3845	2719	700	675	725
Stocks, January 31....	965	1460	1256	345	460	355

	1907.	1906.	1905.
World's visible supply, January 31....*Tons*	2,587	4,062	2,972
Pará receipts, July 1 to January 31.....	16,730	18,319	16,326
Pará receipts of Caucho, same dates.....	1,655	2,065	1,504
Afloat from Pará to United States, Jan. 31	499	721	529
Afloat from Pará to Europe, January 31..	650	1,197	675

Antwerp

ANTWERP STATISTICS FOR DECEMBER.

DETAILS.	1906.	1905.	1904.	1903.	1902.
Stocks, Nov. 30. *kilos*	714,919	635,296	611,726	680,142	185,961
Arrivals in Dec..	636,460	474,175	581,844	638,158	799,236
Congo sorts....	579,700	436,404	460,386	599,945	760,150
Other sorts....	56,760	37,771	121,458	38,213	39,086
Aggregating..	1,351,379	1,109,471	1,193,570	1,318,300	985,197
Sales in December	693,195	374,284	652,209	707,400	327,092
Stocks, Dec. 31...	658,184	735,187	541,361	610,900	658,105
Arrivals since Jan. 1	5,772,062	5,713,728	5,763,856	5,726,483	5,403,985
Congo sorts....	4,593,759	4,442,607	4,723,618	5,180,401	4,992,954
Other sorts....	1,178,303	1,271,121	1,040,238	546,082	411,031
Sales since Jan. 1	5,849,065	5,519,805	5,833,395	5,773,668	5,160,589

COMPARATIVE ANTWERP PRICES—EXTREMES.

[In Francs per Kilogram.]

GRADES.	1904.	1905.	1906.
Kasai, red, I...	10.32½=11.15	11.40 =12.60	12.50 =13.25
Equateur, I...	10.50 =11.25	11.25 =12.67½	12.72½=13.40
Lopori, I.....	10.50 =11.25	11.25 =12.67½	12.72½=13.40
Uele	9.60 =10.20	10.35 =11.35	11.30 =12.
Aruwinu	9.60 =10.20	10.35 =11.35	11.30 =12.
Upper Congo, Ordinary....	10. =10.75	10.75 =12.15	11.35 =12.25
Lower Congo, Thimbles ...	5.50 = 6.50	5.50 = 6.50	6.50 = 7.
*Fine Pará....	3s.11¼d.=5s.5d.	4s.11¾d.=5s.7d.	5s.0½d.=5s.5d.

[* In English money, per pound.]

10 Francs per Kilogram = 87½ Cents per Pound.

JANUARY 14.—By the *Bruxellesville*, from the Congo:

Bunge & Co.....(Société Générale Africaine) *kilos*		114,000
Do .....(Société Anversoise)		1,500
Do .....(Comité Special Katanga)		3,000
Do .....(Société A. B. I. R.)		8,500
Do .....(Comptoir Commercial Congolais)		17,000
Société Coloniale Anversoise (Belge du Haut Congo)		4,000
Do .....(Süd Kamerun)		1,900
Do .....(Cie. de Lomani)		3,900
Do		1,000
L. & W. Van de Velde.....(Cie. du Kasai)		116,000
Do		7,000
Société Generale de Commerce.....(Alimaienne)		7,000
M. S. Cols.....(l'Ikelemba)		400
		285,200

FEBRUARY 4.—By the *Albertville*, from the Congo:

Bunge & Co.....(Société Generale Africaine) *kilos*		174,000
Do .....(Société Anversoise)		24,000
Do .....(Cie. du Kasai)		67,000
Bunge & Co.....(Chemins de fer Grand Lacs)		6,500
Do .....(Comité Special Katanga)		1,800
Société Coloniale Anversoise (Belge du Haut Congo)		6,000
Do .....(Lulonga)		1,700
Do .....(Süd Kamerun)		1,000
Do .....(Cie. de Lomani)		1,500
M. S. Cols.....(Baniembe)		500
Do .....(Alima)		7,000
Société Generale de Commerce.....(Alimaienne)		1,000
L. & W. Van de Velde.....		2,000
		294,000

London.

PLANTATION RUBBER.

FEBRUARY 1.—At to-day's auction 362 packages of Ceylon and Malaya plantation rubber were offered and 226 sold, the total weight amounting to 21 tons, of which Ceylon contributed about one-third. The market was quieter, in sympathy with Pará grades, and prices showed a slight decline. The highest paid was 5*s.* 10½*d.* [=$1.43] for a small lot of pale clear Ceará biscuits from Rangbodde estate. A small lot of good rambong (*Ficus*) sold at 5*s.* 1¾*d.* [=$1.25⅛]. The average for all sorts of plantation was 5*s.* 5*d.*, against 5*s.* 6¼*d.* at the preceding auction. Fine hard Pará sold up to 5*s.* 2¼*d.*

Rubber Receipts at Manaos

DURING December and six months of the crop season for three years [courtesy of Messrs. Scholz & Co.]:

		December. 1906.	1905.	1904.	July-December. 1906.	1905.	1904.
Rio Purus-Acre	(Tons)	211	546	315	2,368	2,833	2,009
Madeira	"	224	379	437	1,902	1,637	1,686
Jurua	"	489	528	519	1,346	1,506	1,184
Javary-Iquitos	"	440	479	658	1,806	1,965	1,816
Solimoes	"	159	170	176	478	648	434
Rio Negro	"	156	116	142	214	168	175
Total	"	1,679	2,218	2,247	8,114	8,757	7,304
Caucho	"	145	398	192	971	1,113	650
Total	"	1,824	2,616	2,439	9,085	9,870	7,954

RUBBER EXPORTS FROM MANOAS, 1906.

To—	Fine.	Medium.	Coarse.	Caucho.	Total.
New York ...*kilos*	3,944,709	1,003,251	1,193,915	1,020,569 =	7,162,444
Liverpool	2,860,255	469,839	732,202	2,056,164 =	6,118,460
Havre and Hamburg	1,940,217	270,904	516,064	1,142,321 =	3,869,506
Total 8,745,181		1,743,994	2,742,211	4,219,054 =	17,150,410

DIRECT EXPORT FROM MANOAS TO HAMBURG.

	Tons.		Tons.
In 1901	57	In 1904	403
In 1902	104	In 1905	858
In 1903	266	In 1906	1,053

Para Rubber Exports (1906)

THE figures embrace also the exports from Manoas, and in transit from Peru and Bolivia, through Pará:

To—	Fine.	Medium.	Coarse.	Caucho.	Total.
United States..*kilos*	7,406,171	1,785,315	5,469,419	1,531,399 =	16,192,304
Europe	9,298,310	1,253,574	3,223,944	4,799,623 =	18,575,451
Total	16,704,481	3,038,889	8,693,363	6,331,022 =	34,767,755

RECAPITULATION OF PARA EXPORTS.

		To America.	To Europe.	Total.
In 1906 .....*kilos*		16,192,304	18,575,451	34,767,755
In 1905		15,260,345	18,656,543	33,916,888
In 1904		16,309,468	14,334,668	30,644,136
In 1903		15,033,395	16,061,547	31,094,942
In 1902		13,859,868	14,689,912	28,549,780
In 1901		15,550,978	14,739,520	30,290,498

Rubber Scrap Prices.

New York quotations—prices paid by consumers for carload lots in cents per pound—are higher than one month ago.

Old Rubber Boots and Shoes Domestic.....	13 @13½
Do —Foreign	10⅝@10⅞
Pneumatic Bicycle Tires	7½@ 7¾
Automobile Tires	10 @10⅜
Solid Rubber Wagon and Carriage Tires.....	8¼@ 8⅞
White Trimmed Rubber	11½@11¾
Heavy Black Rubber	5½@ 5⅝
Air Brake Hose	4¾@ 5
Fire and Large Hose	3⅝@ 3¾
Garden Hose	2½@ 2¾
Matting	1½@ 1⅝

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

JANUARY 26.—By the steamer *Fluminense*, from Manaos and Para:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	292,400	61,900	81,600	1,900=	437,800
General Rubber Co.	171,900	31,700	133,400	1,000=	338,000
A. T. Morse & Co.	156,200	32,100	85,800	8,900=	283,000
New York Commercial Co.	39,800	27,800	51,600	6,600=	125,800
Neale & Co.	25,700	4,300	47,500	.....=	77,500
Edmund Reeks & Co.	33,300	5,300	32,100	800=	71,500
C. P. dos Santos	26,100	9,300	24,400	.....=	59,800
Hagemeyer & Brunn	13,900	.....	6,600	.....=	20,500
G. Amsinck & Co.	1,800	.....	5,900	.....=	7,700
Total	761,100	172,400	468,900	19,200=	1,421,600

FEBRUARY 4.—By the steamer *Cuthbert*, from Manaos and Para:

Poel & Arnold	146,100	52,600	72,600	12,100=	283,400
General Rubber Co.	63,000	13,700	97,400	20,400=	194,500
A. T. Morse & Co.	104,800	18,600	28,900	3,500=	155,800
New York Commercial Co.	59,600	20,300	44,100	20,000=	144,000
Edmund Reeks & Co.	49,300	8,600	44,200	.....=	102,100
Neale & Co.	33,200	3,600	43,500	.....=	80,300
C. P. dos Santos	34,300	3,900	22,400	.....=	60,600
Hagemeyer & Brunn	14,300	.....	15,800	.....=	30,100
G. Amsinck & Co.	12,800	3,600	1,300	.....=	17,700
Total	517,400	124,900	370,200	56,000=	1,068,500

FEBRUARY 16.—By the steamer *Maranheuse* from Manaos and Pará:

New York Commercial Co.	346,800	91,200	104,700	92,400=	635,100
General Rubber Co.	403,200	51,700	185,600	2,800=	643,300
A. T. Morse & Co.	287,100	46,500	106,500	16,600=	456,700
Poel & Arnold	65,700	31,600	144,800	12,700=	254,800
Edmund Reeks & Co.	51,600	10,100	19,400	17,700=	98,800
Neale & Co.	45,500	5,800	39,100	.....=	90,400
C. P. dos Santos	7,500	700	11,900	29,700=	49,800
Hagemeyer & Brunn	29,200	.....	22,500	.....=	51,700
G. Amsinck & Co.	2,800	300	5,500	.....=	8,600
Totals	1,239,400	237,900	640,000	171,900=	2,289,200

[NOTE.—The *Cametense* was due at New York on February 26, with 799 tons rubber and 40 tons caucho.]

PARA RUBBER VIA EUROPE.

JAN. 23.—By the *Bleucher*=Hamburg:

	Pounds.	
Poel & Arnold (Fine)	26,000	
A. T. Morse & Co. (Fine)	7,000	33,000

JAN. 28.—By the *Umbria*=Liverpool:

General Rubber Co. (Coarse)		15,000

JAN. 30.—By the *Bovic*=Liverpool:

Poel & Arnold (Caucho)		34,000

JAN. 31.—By the *Thames*=Mollendo:

New York Commercial Co. (Fine)		3,000

FEB. 1.—By the *Pennsylvania*=Hamburg:

Poel & Arnold (Fine)	15,000	
George A. Alden & Co. (Fine)	8,000	23,000

FEB. 2.—By the *Lucania*=Liverpool:

General Rubber Co. (Fine)	11,000	
General Rubber Co. (Coarse)	34,000	45,000

FEB. 9.—By the *Amerika*=Hamburg:

General Rubber Co. (Fine)	11,500	
General Rubber Co. (Coarse)	4,500	16,000

FEB. 11.—By the *Carmania*=Liverpool:

General Rubber Co. (Fine)	7,000	
General Rubber Co. (Caucho)	22,500	29,500

FEB. 15.—By the *Barcelona*=Hamburg:

A. T. Morse & Co. (Fine)	15,000	
Poel & Arnold (Fine)	15,000	30,000

OTHER ARRIVALS AT NEW YORK

CENTRALS.

JAN. 23.—By the *Tennyson*=Bahia:

	Pounds.	
New York Commercial Co.	8,000	
American Commercial Co.	5,500	
A. D. Hitch & Co.	4,500	18,000

JAN. 26.—By the *Merida*=Frontera:

Harburger & Stack	3,000	
E. Steiger & Co.	1,500	
H. Marquardt & Co.	1,200	
Isaac Kubie & Co.	500	6,200

JAN. 28.—By the *St. Paul*=London:

Poel & Arnold		17,000

JAN. 29.—By the *El Valle*=Galveston:

Continental-Mexican Rubber Co.		35,000

JAN. 30.—By the *Bovic*=Liverpool:

Poel & Arnold		17,000

JAN. 30.—By the *Advance*=Colon:

F. Amsinck & Co.	6,500	
E. B. Straut	3,400	
Hirzel, Feltman Co.	2,500	
Charles E. Griffin	2,300	
Aramburo Incpn.	2,200	
Eggers & Heinlein	2,000	
George A. Alden & Co.	2,000	
Mann & Emdon	1,200	
Wessels, Kulenkampff & Co.	1,200	
Andreas & Co.	600	
Andean Trading Co.	700	24,600

JAN. 30.—By the *El Sud*=Galveston:

Continental-Mexican Rubber Co.		25,000

JAN. 30.—By the *Kroonland*=Antwerp:

Poel & Arnold		7,000

JAN. 31.—By the *Thames*=Colombia, etc.:

G. Amsinck & Co.	7,500	
Meyer & Hecht	3,000	

CENTRALS—*Continued.*

E. B. Straut	2,000	
American Trading Co.	1,200	
Wessels, Kulenkampff & Co.	600	
J. A. Pauli & Co.	600	
Mecke & Co.	600	15,500

FEB. 1.—By the *Cienfuegos*=Tampico:

Continental-Mexican Rubber Co.	70,000	
Edward Maurer	34,000	
New York Commercial Co.	22,500	
European account	75,000	201,500

FEB. 1.—By the *Esperanza*=Frontera:

Harburger & Stack	7,000	
E. Steiger & Co.	2,000	
H. Marquardt & Co.	2,500	
New York Commercial Co.	1,000	
Graham, Hinkley Co.	500	13,000

FEB. 1.—By the *Panama*=Colon:

Demarest Bros. & Co.	8,000	
Hirzel, Feltman & Co.	6,000	
Piza Nephews Co.	5,500	
G. Amsinck & Co.	4,000	
A. Santos & Co.	3,000	
Roldan & Van Sickle	2,500	
L. Johnson & Co.	1,000	
W. R. Grace & Co.	1,000	
Pablo Calvet Co.	500	31,500

FEB. 2.—By the *Lucania*=Liverpool:

General Rubber Co.		15,000

FEB. 4.—By the *Washington*=Tampico:

Continental-Mexican Rubber Co.	115,000	
Edward Maurer	35,000	
New York Commercial Co.	30,000	180,000

FEB. 4.—By the *El Norte*=New Orleans:

A. T. Morse & Co.	10,000	
G. Amsinck & Co.	4,000	
A. N. Rotholz	3,000	
Manhattan Rubber Mfg. Co.	2,000	19,000

FEB. 6.—By the *Canning*=Bahia:

Adolph Hirsch & Co.	18,000	
A. D. Hitch & Co.	6,000	
America Commerce Co.	6,000	30,000

FEB. 5.—By the *Virginia*=Colon:

Hirzel, Feltman & Co.	15,000	
L. Johnson & Co.	2,500	
G. Amsinck & Co.	2,000	
A. Rosenthal's Sons	1,500	
Jose Julia & Co.	1,000	
Vander Grift Co.	1,000	
A. M. Capen's Sons	1,000	24,000

FEB. 7.—By the *Sarnia*=Colombia:

G. Amsinck & Co.	1,500	
Isaac Brandon & Bros.	1,000	
Charles E. Griffin	1,000	
American Trading Co.	1,000	4,500

FEB. 8.—By the *Baltic*=Liverpool:

Robinson & Stiles		53,000

FEB. 8.—By the *Alliance*=Colon:

G. Amsinck & Co.	9,000	
Mann & Emdon	6,000	
Hirzel, Feltman & Co.	2,000	
Andean Trading Co.	1,500	18,500

FEB. 9.—By the *El Rio*=New Orleans:

A. N. Rotholz	1,500	
A. T. Morse & Co.	1,500	3,000

FEB. 9.—By the *Monterey*=Yucatan:

H. Marquardt & Co.	2,000	
Fred Probst & Co.	2,000	

CENTRALS—*Continued.*

Graham, Hinkley & Co.	1,500	
W. H. Wadleigh	1,000	
Harburger & Stack	1,000	7,500

FEB. 11.—By the *El Cid*=Galveston:

Continental-Mexican Rubber Co.		22,500

FEB. 11.—By the *Comus*=New Orleans:

A. T. Morse & Co.	4,000	
G. Amsinck & Co.	2,500	
Eggers & Heinlein	1,500	8,000

FEB. 11.—By the *Matanzas*=Tampico:

Continental-Mexican Rubber Co.	45,000	
Edward Maurer	34,000	
New York Commercial Co.	22,000	101,000

FEB. 14.—By the *Trent*=Colombia, etc.:

G. Amsinck & Co.	9,000	
I. H. Rosshach & Bros.	6,500	
Kunhardt & Co.	2,500	
Roldau & Van Sickle	1,500	
Lunha & Cortinez	1,500	
D. A. De Lima & Co.	1,000	
J. A. Pauli & Co.	1,000	
Leauz & Co.	500	
A. M. Capen's Sons	500	24,000

FEB. 15.—By the *Flaudria*=Greytown:

Eggers & Heinlein	2,000	
G. Amsinck & Co.	1,500	
Halle & Sahle	1,500	5,000

FEB. 15.—By the *Flandria*=Greytown:

Dumarest Bros. Co.	4,000	
Roldau & Van Sickle	3,500	
G. Amsinck & Co.	2,500	
E. B. Strout	2,000	
Jose Julia & Co.	1,500	
Aramburo Inc.	1,500	
Siloa Bussenus & Co.	1,500	
Hirzel Feltman Co.	1,500	
A. Santos & Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	
R. G. Barthold	500	20,500

FEB. 15.—By the *Barcelona*=Hamburg:

Poel & Arnold	15,000	
George A. Alden & Co.	5,500	20,500

AFRICANS.

	Pounds.	
JAN. 23.—By the *Bleucher*=Hamburg:		
General Rubber Co.	22,500	
A. T. Morse & Co.	17,000	
Rubber Trading Co.	10,000	49,500
JAN. 25.—By the *Arabic*=Liverpool:		
George A. Alden & Co.	40,000	
A. T. Morse & Co.	7,000	
A. W. Brunn Co.	3,500	50,500
JAN. 25.—By the *Slaterduk*=Rotterdam:		
Poel & Arnold	22,000	
Rubber Trading Co.	11,000	33,000
JAN. 26.—By the *Bosnia*=Hamburg:		
George A. Alden & Co.	33,000	
W. L. Gough & Co.	5,000	
Robinson & Stiles	2,000	40,000
JAN. 29.—By the *Kron Princes Cecile*=Hamburg:		
A. T. Morse & Co.		10,000
JAN. 30.—By the *Bovic*=Liverpool:		
Poel & Arnold	11,500	
A. T. Morse & Co.	11,500	23,000

AFRICANS—*Continued.*

JAN. 30.—By the *Kroonland*=Antwerp:

A. T. Morse & Co.	40,000	
Poel & Arnold	15,000	55,000

JAN. 31.—By the *Teutonic*=Liverpool:

General Rubber Co.	33,000	
George A. Alden & Co.	15,000	
Robinson & Stiles	5,000	
A. W. Brunn Co.	5,000	58,000

FEB. 1.—By the *Pennsylvania*=Hamburg:

A. T. Morse & Co.	15,000	
George A. Alden & Co.	11,000	
Poel & Arnold	4,500	
Rubber Trading Co.	4,500	
General Rubber Co.	4,500	39,500

FEB. 2.—By the *Lucania*=Liverpool:

Poel & Arnold	50,000	
General Rubber Co.	10,000	60,000

FEB. 4.—By the *New York*=Bordeaux:

General Rubber Co.	40,000	
George A. Alden & Co.	10,000	
A. T. Morse & Co.	7,000	57,000

FEB. 8.—By the *Victorian*=Liverpool:

George A. Alden & Co.	50,000	
General Rubber Co.	40,000	
A. T. Morse & Co.	5,000	95,000

FEB. 8.—By the *Amerika*=Hamburg:

General Rubber Co.		60,000

FEB. 8.—By the *Baltic*=Liverpool:

George A. Alden & Co.	11,000	
A. T. Morse & Co.	11,000	
Poel & Arnold	6,500	
A. W. Brunn Co.	2,500	31,000

FEB. 9.—By the *Savoie*=Havre:

George A. Alden & Co.		7,000

FEB. 11.—By the *Carmania*=Liverpool:

General Rubber Co.	115,000	
A. T. Morse & Co.	5,000	
George A. Alden & Co.	5,000	125,000

FEB. 11.—By the *America*=Antwerp:

George A. Alden & Co.	170,000	
Poel & Arnold	35,000	
Joseph Cantor	5,000	
A. T. Morse & Co.	2,500	212,500

FEB. 15.—By the *Majestic*=Liverpool:

Joseph Cantor	9,000	
George A. Alden & Co.	4,000	13,000

FEB. 15.—By the *Barcelona*=Hamburg:

General Rubber Co.	15,000	
Poel & Arnold	11,000	
A. T. Morse & Co.	11,500	
George A. Alden & Co.	5,500	43,000

EAST INDIAN.

	Pounds.	
JAN. 25.—By the *Arabic*=Liverpool:		
C. Van Postan & Co.		7,000
JAN. 28.—By the *St. Paul*=London:		
A. T. Morse & Co.	7,000	
Poel & Arnold	3,500	10,500

EAST INDIAN—*Continued.*

JAN. 28.—By the *Braemar*=Singapore:

Joseph Cantor	16,000	
Heabler & Co.	5,000	21,000

JAN. 28.—By the *Minnehaha*=London:

General Rubber Co.	25,000	
George A. Alden & Co.	3,500	28,500

JAN. 30.—By the *Yeddo*=Singapore:

W. L. Gough & Co.	11,000	
General Rubber Co.	8,000	19,000

FEB. 7.—By the *Stolzenfels*=Colombo:

A. T. Morse & Co.		11,000

FEB. 13.—By the *Mesaba*=London:

General Rubber Co.	14,000	
George A. Alden & Co.	5,000	19,000

FEB. 16.—By the *Ghazee*=Singapore:

George A. Alden & Co.	17,000	
W. L. Gough & Co.	17,000	
Heabler & Co.	25,000	
Winter & Smillee	10,000	
General Rubber Co.	10,000	79,000

GUTTA-JELUTONG.

	Pounds.	
JAN. 25.—By the *Kennebec*=Singapore:		
William Tappenbach	150,000	
Poel & Arnold	65,000	
Heabler & Co.	40,000	
American Trading Co.	22,000	277,000
JAN. 29.—By the *Braemar*=Singapore:		
L. Littlejohn & Co.	110,000	
W. L. Gough & Co.	100,000	
Joseph Cantor	125,000	
Heabler & Co.	80,000	
Poel & Arnold	20,000	435,000
JAN. 30.—By the *Yeddo*=Singapore:		
H. Pauli & Co.	210,000	
D. A. Shaw & Co.	100,000	
General Rubber Co.	60,000	
Heabler & Co.	110,000	480,000
FEB. 16.—By the *Ghazee*=Singapore:		
George A. Alden & Co.	200,000	
W. L. Gough & Co.	90,000	
Joseph Cantor	45,000	
H. Pauli & Co.	45,000	
A. W. Brunn Co.	140,000	
Heabler & Co.	100,000	
William Tappenbach	100,000	720,000

GUTTA-PERCHA.

	Pounds.	
JAN 28.—By the *Kron Princess Cecelia*=Hamburg:		
Robert Soltau & Co.		7,000
JAN. 29.—By the *Braemar*=Singapore:		
Bishop Gutta-Percha Co.		25,000
JAN. 30.—By the *Yeddo*=Singapore:		
Robert Soltau & Co.		55,000
FEB. 15.—By the *Barcelona*=Hamburg:		
Robert Soltau & Co.		33,000

GUTTA-PERCHA—*Continued.*

FEB. 16.—By the *Ghazee*=Singapore:

George A. Alden & Co.	75,000	
Joseph Cantor	15,000	90,000

BALATA.

	Pounds.	
JAN. 26.—By the *Grenada*=Ciudad Bolivar:		
Thebaud Brothers	12,000	
Middleton & Co.	3,500	15,500
FEB. 9.—By the *Korona*=Demerara:		
A. T. Morse & Co.		11,000
FEB. 11.—By the *Tampician*=London:		
Rubber Trading Co.		6,500
FEB. 11.—By the *Prins Willem*=Surinam:		
G. Amsinck & Co.		3,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY.

Imports:	Pounds.	Value.
India rubber	6,121,596	$4,956,777
Gutta-percha	215,223	73,741
Gutta-jelutong (Pontianak)	2,826,410	90,160
Total	9,163,229	$5,120,678
Exports:		
India-rubber	105,252	$88,496
Reclaimed rubber	88,005	12,093
Rubber Scrap Imported	1,041,086	81,938

BOSTON ARRIVALS.

	Pounds.	
DEC. 1.—By the *Sylvania*=Liverpool:		
Poel & Arnold—African		4,870
DEC. 6.—By the *Sachem*=Liverpool:		
Poel & Arnold—Central		21,181
DEC. 7.—By the *Sachem*=Liverpool:		
George A. Alden & Co.—African		15,075
DEC. 14.—By the *Belgravia*=Hamburg:		
George A. Alden & Co.—African		9,891
DEC. 17.—By the *City of Washington*=San Luis Potosi:		
		9,000
DEC. 18.—By the *Silvia*=Hamburg:		
W. L. Gough & Co.—East Indian		11,123
DEC. 19.—By the *Sagamore*=Liverpool:		
Poel & Arnold—African	4,536	
George A. Alden & Co.—African	2,097	6,633
DEC. 31.—By the *Sylvania*=Liverpool:		
Poel & Arnold—Central		31,626
DEC. 31.—By the *Cambrian*=London:		
George A. Alden & Co.—East Indian		2,112
Total		111,511

OFFICIAL STATISTICS OF CRUDE INDIA RUBBER (IN POUNDS)

UNITED STATES.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1906	7,634,553	513,547	7,121,006
January-November	60,272,936	3,289,915	56,983,021
Twelve months, 1906	67,907,489	3,803,462	64,104,027
Twelve months, 1905	64,147,701	3,620,522	60,527,179
Twelve months, 1904	61,889,758	3,449,433	58,440,325

GERMANY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1906	3,535,620	962,280	2,573,340
January-November	33,837,100	11,450,340	22,386,760
Twelve months, 1906	37,372,720	12,412,620	24,960,100
Twelve months, 1905	47,064,600	17,271,320	29,793,280
Twelve months, 1904	38,295,400	10,052,020	28,243,380

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1906	4,011,480	1,373,240	2,638,240
January-November	26,920,960	18,241,960	8,679,000
Twelve months, 1906	30,932,440	19,615,200	11,317,240
Twelve months, 1905	26,783,460	16,651,360	10,132,100
Twelve months, 1904	20,651,620	11,526,900	9,124,720

BELGIUM.†

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1906	1,928,847	1,985,949	‡57,102
January-November	18,836,994	14,938,323	3,841,569
Twelve months, 1906	20,765,841	16,924,272	3,898,671
Twelve months, 1905	18,679,082	14,959,619	3,719,463
Twelve months, 1904	17,955,293	16,301,295	1,653,998

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1906	5,488,000	3,500,112	1,987,888
January-November	62,504,624	33,488,224	29,016,400
Twelve months, 1906	67,992,624	36,988,336	31,004,288
Twelve months, 1905	66,464,944	37,464,112	29,000,832
Twelve months, 1904	55,555,584	33,415,536	22,140,048

NOTE.—German statistics before Jan. 1, 1906, include Gutta-percha, Balata, old (waste) rubber. British figures include old rubber. French, Austrian and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

* General Commerce. † Special Commerce. ‡ Net Exports.

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Caoutchouc Gutta-Percha

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Liverpool.

WILLIAM WRIGHT & Co. report [February 1]:

Fine Pará.—The market throughout the month has been dull. Prices advanced a little during the first half, but subsequently declined, closing at about last month's values—5*s.* 2½*d.* for Up-river, and 5*s.* ¼*d.* for Islands. Receipts in Brazil are still delayed; doubtless they will eventually come, but the longer they are delayed the greater eagerness there will be to secure them. America has been operating freely in Manáos, at full prices, which will further tend to keep up rates. Sellers here have been extremely cautious, and although efforts have been made to depress prices, they have had practically no effect, in view of the uncertain future.

MESSRS. JOSEPH FYNNEY & Co., india-rubber merchants and importers, Harley Buildings, 11 Oldham street, have presented their friends in the trade with a handsome "Diary for 1907," with useful statistics of rubber and "loss in washing" tables—pocket size and very convenient.

British Official Returns.

INDIA-RUBBER.

	1904.	1905.	1906.
Imports ..... *Pounds*	55,555,584	66,464,944	67,992,624
Exports	33,415,536	37,464,112	36,988,336
Net imports	22,140,048	29,000,832	31,004,288

GUTTA-PERCHA.

	1904.	1905.	1906.
Imports ..... *Pounds*	3,056,256	5,088,608	5,986,352
Exports	890,622	1,020,880	973,952
Net imports	2,165,634	4,067,728	5,012,400

Bordeaux.

ARRIVALS at this market in 1906 exceeded those for the preceding year by 285 tons. The major share is from French West Africa. The Soudan output remained stationary; Conakry and Gambia showed a good increase. More rubber came from Madagascar and Indo-China. Ceará (Brazil) contributed 45 tons of "manicoba" rubber, which brought good prices. Total receipts at Bordeaux for eight years:

1899	175,589 kilos.	1903	1,113,000 kilos.
1900	239,532 "	1904	1,182,703 "
1901	235,380 "	1905	1,330,480 "
1902	678,000 "	1906	1,716,004 "

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THE Inambari Pará Rubber Estates, Limited, is the name of a company formed lately in London to acquire certain rubber properties on the river Inambari, in the district of Carabaya, southern Peru. One of the properties is that of the Carabaya Rubber and Navigation Co., incorporated under the laws of Maine (United States). The authorized capital is £350,000 [=$1,703,275]. A public subscription was opened in London on February 6 for £200,000, designed to pay the purchase price and promotion expenses, and leave £75,000 for working capital. The vendors are Frank Squier, of New York, and Sir George Newnes, of London. The board of the new company includes Sir Martin Conway, who was concerned with the Acre concession, and Charles A. Lampard and Keith F. Arbuthnot, London men who are directors in important Eastern rubber plantations. The plan of the Inambari company is to export rubber via Mollendo, on the Pacific coast, with the aid of improved mule roads now under construction. There are involved grants of land from the government of Peru, leaseholds of other lands, and grants of still other areas, contingent upon the completion of the roads mentioned.

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Gutta Percha & Rubber Mfg. Co., N. Y.

Hose Protected.—Continued.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

Cotton and Linen.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Gutta Percha & Rubber Mfg. Co., N. Y.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Fabric Fire Hose Co., New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Electric Hose & Rubber Co., Wilmington, Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

"Jenkins '96" Packing.

Jenkins Bros., New York.

Lawn Sprinklers.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

Mould Work.

(See Mechanical Rubber Goods.)

H. O. Canfield Co., Bridgeport, Ct.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
Laurel Rubber Co., Garfield, N. J.
Massachusetts Chemical Co., Walpole, Mass.
Mattson Rubber Co., New York.
Mitzel Rubber Co., Akron, O.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.
Western Rubber Works, Goshen, Ind.

"Nubian" Packing.

Voorhees Rubber Mfg. Co., Jersey City.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.

Oil Well Supplies.—Continued.

Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Western Rubber Works, Goshen, Ind.

Pump Valves.

(See Mechanical Rubber Goods.)

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
Revere Rubber Co., Boston, Mass.
Western Rubber Works, Goshen, Ind.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Sewing Machine Rubbers.

B. F. Goorich Co., Akron, O.

Springs—Rubber.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co., of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Canadian Rubber Co., of Montreal, Ltd.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.

RUBBER BUYERS' DIRECTORY—Continued.

Tiling.—Continued.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

(See Mechanical Rubber Goods.)
American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Laurel Rubber Co., Garfield, N. J.
Plymouth Rubber Co., Stoughton, Mass.
New Jersey Car Spring & Rubber Co.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York.
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Western Rubber Works, Goshen, Ind.

Valves.

(See Mechanical Rubber Goods.)
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York-Chicago.
New Jersey Car Spring & Rubber Co.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic, N. J.
New York Belting & Packing Co., Ltd., New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES.

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Luzerne Rubber Co., Trenton, N. J.
Mitzel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York.

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.

Finger Cots.

Baumann Rubber Co., New Haven, Ct.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
The Rubber Products Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I.
Rubber Products Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
Davol Rubber Co., Providence, R. I.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Baumann Rubber Co., New Haven, Ct.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Geo. Borgfeldt & Co., New York.
Faultless Rubber Co., Ashland, O.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
A. Schrader's Sons, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich, Akron, O.
National India Rubber Co., Bristol, R. I.
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND SURFACE GOODS.

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Gutta Percha & Rubber Mfg. Co., Toronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

(See Clothing.)

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR.

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal.
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Lycoming Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Ajax-Grieb Rubber Co., Trenton, N. J.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co., Hanover.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass.
Western Rubber Works, Goshen, Ind.

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Granby Rubber Co., Granby, Quebec.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
La Crosse Rubber Mills Co., La Crosse, Wis.
National India Rubber Co., Providence.
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND STAMP RUBBER.

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL.

Electrical Supplies.

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

RUBBER BUYERS' DIRECTORY—Continued.

Friction Tape.
Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.
American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J.

Insulating Compounds.
Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.
National India Rubber Co., Providence.

Splicing Compounds.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Walpole, Mass.

SPORTING GOODS.

Foot Balls.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Rubber Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Golf Balls.
Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Rubber Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Sporting Goods.
Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Rubber Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Rubber Co., Akron, O.
Rubber Products Co., Barberton, O.

Submarine Outfits.
Hodgman Rubber Co., New York.

MISCELLANEOUS.

Boiler Specialist.
H. W. Jones, New York.

Cement (Rubber).
Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Rubber Co., Akron, O.
Hadley Cement Co., Lynn, Mass.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical Analyses.
Durand Woodman, Ph.D., New York.
H. L. Terry, Manchester, England.

Chemical and Mechanical Engineer.
Charles E. Farrington, Boston.

Chemists.
Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph.D., New York.

Engraver.
P. C. Smith, Boston, Mass.

Railways.
Acme Rubber Mfg. Co., Trenton.

Rubber Journals.
Gummi-Zeitung, Dresden, Germany.

Rubber Planting.
Batavia Company, Batavia, N. Y.
Ohio Rubber Culture Co., Canton, O.

Rubber Tree Seeds.
J. P. William & Bros., Heneratgoda, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY.

Acid Tanks.
Birmingham Iron Foundry, Derby, Conn.

Band Cutting Machine.
A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.

Belt Folding Machines.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Belt Slitters.
Cloth Dryers.
Gearing.
Shafting.

Wrapping Machines.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Belt Stretchers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.
New England Butt Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Buckles.
The Weld Mfg. Co., Boston.

Cabling Machinery.
Alton Machine Co., New York.

Calenders.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
Textile-Finishing Machinery Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Castings.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Chucks (Lathe).
Hoggson & Pettis Mfg. Co., New Haven.

Churns.
American Tool & Machine Co., Boston.

Clutches.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Crackers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.

Devulcanizers.
Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Edred W. Clark, Hartford, Conn.
William R. Thropp, Trenton, N. J.

Dies.
John J. Adams, Worcester, Mass.
Barbour Bros., Trenton, N. J.
T. J. Beaudry, Marlboro, Mass.
Brockton Die Co., Brockton, Mass.
Hoggson & Pettis Mfg. Co., New Haven.
Independent Die Co., Brockton, Mass.
Joseph E. Knox & Co., Lynn, Mass.

Doubling Machines.
American Tool & Machine Co., Boston.

Drying Apparatus.
American Process Co., New York.

Drying Machines.
Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.
Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.
Alton Machine Co., New York.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Engraving Roll.
Hoggson & Pettis Mfg. Co., New Haven.

Grinders and Mixers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
William R. Thropp, Trenton, N. J.

Hangers.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Hose Machines.
A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Conn.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Insulating Machinery.
Textile Machine Works, Reading, Pa.

Iron Castings.
Alton Machine Co., New York.

Lasts (Rubber Shoe).
Middlesex Last Co., Boston.

Lathes—Hard Rubber.
A. Adamson, Akron, O.

Lathes—Jar Ring.
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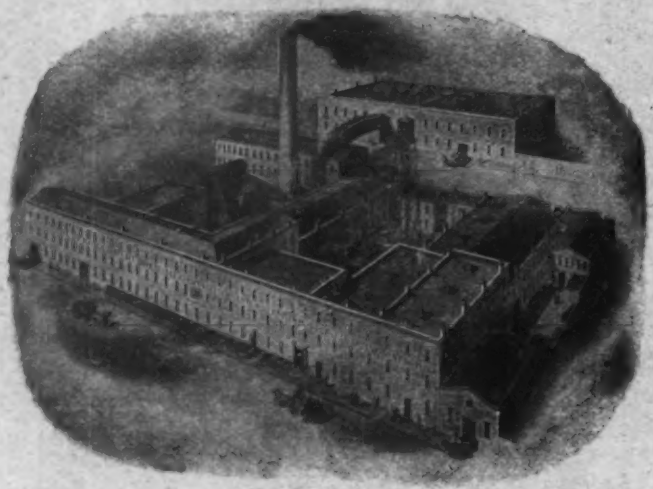

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